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Fisher
11-20-37

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No doubt the most interesting item found on our railroads, either in this day or in the past, is the locomotive. Much has been written about its developments, its performance and the men who have built them. There is no question but that it is the best known item of our railroad history. On the other hand, we must remember that the whole railroad—the tracks, the signals and the equipment have been developed and have kept pace with the locomotive. One of the most interesting papers read before our New York Chapter was one prepared by Mr. V. R. Willoughby of the American Car & Foundry Co., touching on the design of the freight and passenger equipment. We are sure that this paper will be of interest to the majority of our members.

Another nearly forgotten subject is the matter of Standard time. While we have our troubles in the summer with this so-called Daylight Saving Time, this trouble is nothing compared to the time adopted by each city or state. Mr. Withington has given us some very interesting facts relative to the standardization of time in the State of Connecticut.

We also welcome to our columns, Messrs. Kessler, Hart, Meyer and Doherty, whose first contributions appear in our columns. Messrs. Kessler and Doherty selected a subject in their locality, Mr. Meyer recalled a trip to Alaska and Mr. Hart, while bent on the study of his

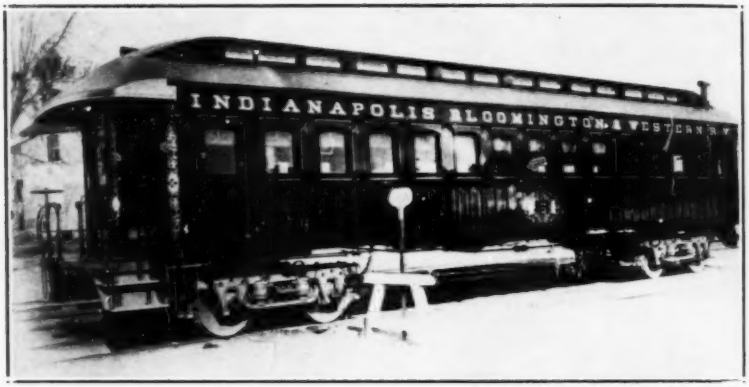
favorite road, the Reading, stumbled on two early English-built locomotives that came to this country and the additional knowledge gained is well worth recording. To the other contributors we extend our thanks for their efforts and to our members, we trust that you will find this publication of interest.

COVER DESIGN

Until it was discontinued from service last year, in point of service, the Fall River Line Steamboat Train was the oldest of our most famous trains in this country. Since the locomotives of this road will be listed in both this and in Bulletin No. 47, the design used on this cover, executed by our member and artist—Mr. E. Andre Schefer depicts this train back in the days when the service to New York was built around the once famous Fall River Line.

PRINTS FOR SALE

In the Borden collection, acquired by this Society last year, were a large number of prints, duplicates in his collection. The majority are prints made from plates owned by Mr. Borden but there are a few prints from other collectors which are duplicates in this collection. The subjects covered are all American roads and a few Canadian. The Room Committee has authorized the sale of this duplicate material—twenty-four (24) of these prints for $1.00. Each lot of 24 prints will contain at least 12 5x7 size, the balance being made up of P. C., 116 and 8x10. We cannot sort these prints out for the individual roads but you may specify whether you want New England, Eastern, Southern, Mid-western or Western subjects and it would be wise for you to specify an alternate. The quality of these prints ranges from fair to good, old and modern locomotives and if you are willing to take "pot luck" you will get your worth of prints for the money. These prints should be ordered from Mr. Harold S. Walker, Ass't. Secretary, P. O. Box 765, Beach Bluff, Massachusetts.



Courtesy of American Car & Foundry Co.

Built by Jackson & Sharp—1865.

Courtesy of American Car & Foundry Co.

Built by Jackson & Sharp—1865.

A Century of Car Design and Examples of Present Construction

An address delivered by V. R. WILLOUGHBY, *Vice President in charge of Engineering of the American Car and Foundry Company, before the New York Chapter of the Railway and Locomotive Historical Society in the Engineering Societies Building, New York City, on March 12, 1937.*

MOTIVE power is absolutely necessary for transportation, in that it is the living part of the structure. But motive power without the load or burden carrying vehicles, the cars, is ineffective. Much has been said about the development of motive power. It is the romance of transportation. Its history is well recorded. Regarding the lowly, prosaic car, historical data is meagre.

When our pre-historic ancestor invented the wheel and placed it on a wagon or cart, he immediately created the necessity for better trails, in fact, the trail had to become a road. From this point on, the land transportation of practically all heavy or bulky articles has been on wheels, the type of vehicle being largely determined by the motive power available, the roads and articles to be transported.

In hauling a loaded cart or wagon over a rough road, a much higher motive power—stronger horses or oxen—are needed than when hauling the same load in the same vehicles on a smooth hard road. Wagon wheels soon cut deep ruts in dirt roads, the only kind they had, and at certain times of the year these roads became impassable for vehicles.

This problem was solved by the English in the 17th Century, when they made a track using wooden timbers for rails, and providing their cart wheels with flanges so they would not run off the rails. This car was a box with four wooden rollers, like spools, and was used for transporting coal from the collieries to the river or sea. These first railway cars had a capacity of about one ton of freight and were operated or drawn by horse power. Thus we have the inception of the modern transportation system.

Motive power, tracks, depots, terminal yards all are essential parts of transportation, but it is the cars which must carry the pay loads and upon the efficiency with which they do their job almost entirely depends the success of the entire system.

The first cars to be operated on rails were highway vehicles provided with flanged wheels to keep them on the rails. The records of our early railroad cars are very meagre. Most of them were of very simple design, built in the shops of the various railroad companies, and embodied the individual ideas of their makers. In trying briefly to set forth the growth of American railway cars during the past century, I must for the first sixty years draw from the printed records. For the last forty years I can speak from my actual experiences in designing and building railway car equipment.

The centennial number of the *Railway Mechanical Engineer*, issue of October, 1932, is my authority for the following:

"When Ross Winans came to Baltimore in 1828, rolling stock for use on railways in America had not yet departed from its highway prototype. The wheels still turned on the axles. Mr. Winans interested himself in producing a vehicle which would offer as little friction as possible and permit the movement of trains of several cars with a single horse. He developed the so-called friction wheel in which the wheels are fixed on the axle which rotates with them, with bearings on the ends of the axle outside of the wheels. A model of this scheme was demonstrated publicly in Baltimore in the Fall of 1828 and it was adopted thereafter in the construction of the cars built by the Baltimore & Ohio. The early cars for use on American railroads were without springs.

In his report, made in October, 1832, with reference to experiments then under way to determine the value of employing "springs in the burthen cars to obviate the effects of concussion," the chief engineer of the Baltimore & Ohio wrote: "It is believed the same cars with springs would be as competent to bear three tons as two and one-half tons without springs and that the damage to the railway would be less.

"The amount of benefit to result from the use of springs will, however, greatly depend upon the rate of speed employed; and whilst it is believed they will be beneficial at all rates of speed, their use will be indispensable at velocities greater than three or four miles an hour. It would appear, therefore that springs should be viewed as an indispensable appendage to all the cars when steam shall be the power used in transit."

The need for carrying capacity in excess of that of the four-wheel cars then available, brought forth the eight-wheel pivoted truck car. Early designs were very numerous. The barrel type of G. S. Hacker was used for both freight and passenger cars. The Tonawanda railroad covered hopper car, with valve or gate at the bottom, was used in handling wheat. In the iron cars of the Philadelphia & Reading, iron was used only in the superstructure or box, not in the underframe.

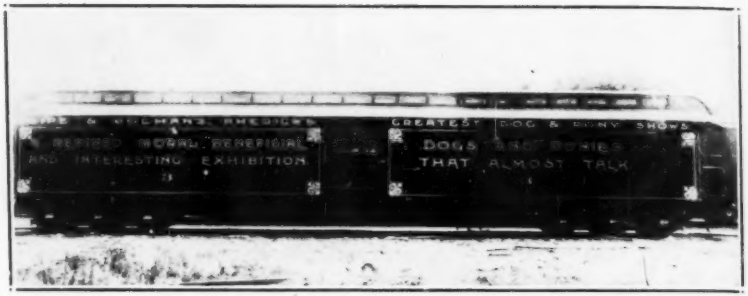
In the vertical cylinder coal cars of the Baltimore & Ohio, the earlier designs had six wheels, the larger designs of later date being carried on two of Ross Winans' patented four-wheel trucks. Spring draft gears appeared about 1840, and rubber truck springs during the same decade.

Taking a box car and adding inner walls, floor and roof, filling the intervening spaces with sawdust, gave in 1857 the first insulated freight car. Ice bunkers or bins were added in 1871.

The air brake, first applied in the winter of 1868-9, and the automatic coupler in 1883 are all important steps in modern car development.

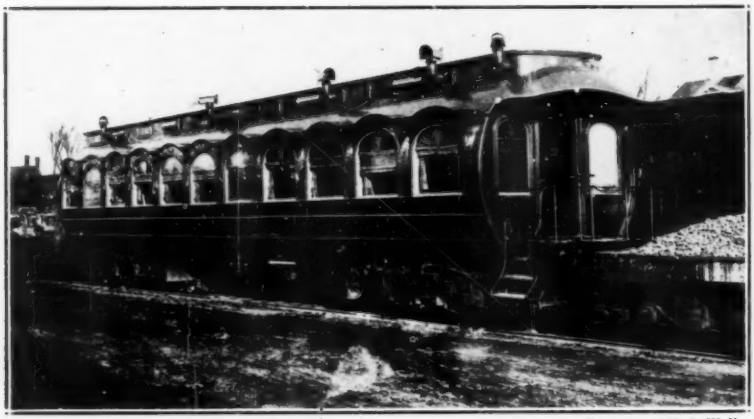
As long as cars remained on their own lines there was little or no attempt at, nor real need, of standardization. Trade development soon called for deliveries beyond any one railroad's lines. Either the load had to be transferred to the connecting line's cars, at considerable expense, or the cars had to be made suitable for operation on other than its home lines.

This condition caused the forming on February 22, 1867, of the Master Car Builders Association. This Association and its successors—the American Railway Association and the Association of American



Courtesy of American Car & Foundry Co.

Built by Ohio Falls Car Co.



Courtesy of H. S. Walker

Who built it, what road did it run on and when! We would like to know its history.

Railroads—by their thorough study of transportation equipment problems and co-operation in the development of details, has been the most influential agency in bringing our American railroad car equipment to its present day efficiency.

Definite designs for those parts essential to interchange operation, safety appliances, limiting diminsions of contour, standards of strength and capacity, have all been formulated by them or under their supervision.

In 1870 the average load for an eight-wheel car was about nine tons. The average car weight was about eight tons. The ratio of car weight to pay load was thus about 1 to 1⅛. The records of the Pennsylvania Railroad show that in 1881, while the car weight had increased to eleven tons, the carrying capacity had increased to twenty tons, thus the car weight to pay load ratio had increased to about 1 to 1.8.

In 1874, iron was introduced into the car structure. The pipe design of the Southern iron car lines, brought out in 1882, was an early, but unsuccessful application of metal in a freight car understructure. It was not until 1894 that our modern steel car had its birth. The first substantial lot of steel cars were built in 1897. These were hopper cars for the coal and ore traffic of the Pittsburgh, Bessemer & Lake Erie Railroad.

From then on development was rapid. Open hearth steel shapes, plates and pressings assembled by riveting were universally introduced for car structures. Wood vanished from the trucks—the arch bar truck sides were used for many years, and many are still in use, but have been made obsolete by the cast steel side frames and bolsters.

Today a coal car of fifty tons nominal capacity has a car weight of about 42,000 pounds and a carrying capacity of 127,000 pounds or a ratio of about 1 to 3. A coal car of seventy tons nominal capacity has a weight of about 52,000 pounds and a carrying capacity of 158,000 pounds, again with a ratio of about 1 to 3. The latest Association of American Railroads open hearth steel hopper cars are of weights which bring this ratio up to about 1 to 3⅜.

The Association of American Railroads' box car of fifty tons nominal capacity, has a weight of about 44,000 pounds and a carrying capacity of 125,000 pounds or ratio of 1 to 2.84. Cars of open hearth steel have been built at weights slightly under those given.

The use of alloy steels, having higher strength values than the usual open hearth steel, is one of the most recent developments; some of these steels have improved rust resisting qualities. By their use lower weights may be attained but generally at a slight increased initial car cost. Welding has found its way into car construction as a substitute for riveting. Both welding and alloy steels will be found in the freight cars of the future, the extent of their use being regulated by the savings they will show, weighed against the costs resulting from their use.

I only wish to mention, in passing, the refrigerator car, with the many problems connected with economical refrigeration. Without this car many of what we regard today as necessities, out of season produce, would not be available.

Tank cars, which transport an almost inconceivable variety of commodities from crude oil and all its liquid products, the dangerous chemicals needed in our synthetic factories, chlorine for our water purifying plants. For all these, unless handled in bulk as in a tank car, we would find their transportation costs prohibitive as well as much more dangerous.

The early passenger car, like the freight car, was the stage coach on rails. Early pictures even show a private highway coach or carriage mounted on a flat car, a forerunner of co-ordinated rail and highway transportation. Some of the first passenger cars were not much more than clumsy, covered box wagons with rough planks for seats. Other designs were very ornate.

The Rensselaer & Saratoga Railroad Company opened its line from Troy, N. Y. to Ballston Spa, N. Y. in October, 1835. We are indebted to the historical records of the Delaware and Hudson Company for the following:

"Contracts had been let in January, 1835, to Gilbert, Veazie and Eaton of Troy, N. Y., for eighteen passenger and twenty baggage and freight cars. A very interesting description of the passenger equipment was given by Freeman Hunt, the noted traveler and writer of that period. In writing from the Mansion House in Troy, under date of May 11, 1836, he said in part:

"Yesterday, I took a seat in one of the passage cars, on the new railroad, for Ballston. The road now extends to Saratoga, and will, I venture to predict, become the most fashionable route, as indeed it is the most interesting, to the Springs. The arrangements for carrying passengers are quite extensive. There are twenty-four cars belonging to the Company—at once spacious, elegant, and convenient. They are twenty-four feet in length by eight in breadth, and sufficiently high within for the passengers to stand erect, the whole divided into three apartments; the seats of which are cushioned and backed with crimson morocco, trimmed with coach lace; each apartment is surrounded by movable panels, thus affording the comforts and facilities of either a closed or open carriage, to suit the convenience of the passengers. The outside of the cars is painted of a beautiful fawn colour, with buff shading, painted in 'picture panels,' with rose, pink, and gold borders, and deep lake shading, the small mouldings of delicate stripes of vermilion and opaque black.

"Within the panels are 'transferred' some of the most splendid productions of the ancient and modern masters, among which are copies from 'Leonardo da Vinci,' 'Horace Vernet,' 'David,' (the celebrated painter to Napoleon), 'Stuart,' and many more of the modern school. The whole number of the subjects of the twenty-four cars, cannot fall far short of two hundred, as each car averages from six to ten subjects; among which may be enumerated, several copies from the antique, Napoleon crossing the Alps, the two splendid scenes in Byron's Mazeppa, the Hospital Mount St. Bernard, portraits of most of the distinguished men of our own country, among whom Washington (from Stuart's original) stands conspicuous, the wounded tiger, the avalanche, portraits of distinguished women, views of several of our popular steamboats, the railroad bridge near Philadelphia, and several views of the south. The 'tout ensemble' is more like a movable gallery of the fine arts, than like a train of railroad cars. The springs of the cars are of Philadelphia make, and bear evenly. The 'journals' are on a new plan, obviating all previous objections. The wheels are of cast iron, with patent rolled iron tire, well annealed and wrought, being put on the car wheel while hot. The cooling of the tire, and the contraction of the iron, render it impossible to deviate from its place. The whole is then turned in a steam lathe by machine tools, thus rendering the circle of the wheel perfect from its center, which is a great desideratum.

Courtesy of American Car & Foundry Co.

Texas Midland R. R. Reclining Seat Coach. Built by St. Charles Car Co.—1896.

"The cars were made in Troy by those famous coach builders, Gilbert, Veazie and Eaton, aided by Mr. Starbuck, a scientific machinist. Connected with the cars are two beautiful locomotives called the 'Erie' and the 'Champlain.'"

Each road's equipment reflected the ideas of its designing officials, or equipment builders both as to comfort and passenger appeal. An eight-wheeled passenger coach built in 1840 was devoid of springs except for the rubber blocks in the pedestals. Windows were stationary. Heat was supplied by a stove, light by a candle at each end of car, other comfort facilities—none. This car was about thirty-six feet long.

In 1854 Dr. B. J. LaMothe invented his iron coach. It was a basket-like structure with cross bands of iron riveted together; the panels between the bands closed by metal sheets. The inside was lined with several layers of pasteboard and heavy cushions prevented radiation and soften shocks in case of accident. In 1852 W. L. Boss invented a reclining car seat.

Air conditioning had its first conception in the later 50's when through hoods on the corners of the car, air was taken in at the top of the car and forced by the motion of the train down through a hot air furnace. After passing through the furnace the air was delivered into the car near its top. Suction hoods at the corners of the roof were connected by ducts leading down to openings near the floor, for removing the air. In summer, the ventilator hoods were changed so that the air flow was reversed. Air taken in at the corners of the car passed through ducts into shallow pans of water beneath the floor of the car, to remove the dust, then into the car. The system was only partially successful.

Sleeping cars, of a fashion, date from 1836. In 1843 a car was built with seats spaced back to back so that a berth could be made up at night using the seat cushions as a mattress.

In 1858, George M. Pullman fitted two Chicago & Alton coaches with sleeping car sections, a linen locker and two washrooms. Candles furnished the light and a strap iron stove the heat. In 1865 The Pioneer, the first all-Pullman built sleeper was built. It was equipped with 6-wheel trucks. This car was used by the President Lincoln funeral party.

In 1867 was built the hotel car, The President, with sleeping quarters and a kitchen at one end. This was the forerunner of our dining car. From this date the development of passenger cars, especially from the standpoint of personal comfort and ornate decoration was rapid.

Oil lamps, which had replaced candles, were, in many places, discarded for Pinstch gas. The narrow vestibule, electric lights experimentally, combined steam-hot water heat, had appeared by 1877. By 1890 the modern system of vapor heat had replaced the dangerous stoves.

While the outsides of the cars were ornately decorated, gold leaf being freely used, the car frame was of wood. The interiors were masterpieces of beautiful woods, with intricate inlays and elaborate carvings. The running gear, couplers, air brakes, etc., kept pace with the freight cars.

Along about this time steel was used in car structures, principally for the bolsters and later draft arms, reinforcement for ends, carlines

and finally as flitch plates for strengthening the longitudinal sills of the car. The next step was the steel platform, which was secured to the underside of the wooden sill structure. This supported the platform or vestibule and extended back, passed through and was securely tied to the steel bolster structure, which at this time was principally flat plates with cast iron thimbles, all bolted together. The draft gear parts were attached to this steel platform.

Steel in a wholesale manner found its way into the construction of the car bodies about the beginning of the present century. It first appeared as steel underframes but with wooden superstructure. A sample car for the New York Rapid Transit Subway Construction Company was built in the Altoona Shops of the Pennsylvania Railroad in 1903. Three hundred of these cars were built by the American Car and Foundry Company and are practically all running today on the Interborough System. As far as we know, this was the first substantial lot of all-steel passenger cars.

The American Car and Foundry Company built steel cars for subway service in the London Underground in 1904. The material for these cars was fabricated at Berwick, Pa., and the cars assembled in London.

From this time on numerous designs of steel cars appeared. In the majority of cases the outside shell was of steel and the inside shell, or inside finish, was of wood. In other cases the entire car, both inner and outer shells, were of steel. In 1911 the Post Office Department in conjunction with a committee from the railroads, after long deliberation, brought out a specification for the construction of steel cars for postal service. These specifications were broadly written and set forth minimum strength requirements. These specifications are still in force today and have been accepted by the railroads as a guide for strength requirements in all types of cars for passenger trains.

All through this time it was apparent that the idea prevailed that mass equals strength until the weight of our main line passenger cars became way out of proportion. For instance, in 1898 the average length of a passenger car was under fifty feet. It carried fifty-six passengers and weighed about 53,000 pounds.

In 1923 the length had increased to about seventy feet. The weight had increased to about 140,000 pounds and the carrying capacity was eighty-four passengers.

The advent of the private automobile, the bus and the aeroplane have cut heavily into the railroads passenger traffic. The railroads realized that something drastic must be done—first, to keep on the rails what traffic they had and second, to regain such lost traffic as was possible.

Air conditioning was really the first major improvement and probably has had greater influence than any other feature in recapturing passenger traffic. Specially designed air conditioning apparatus was installed in the Baltimore & Ohio dining car, Martha Washington, and on April 14, 1930, a test run was made of this car in a regular Baltimore & Ohio train.

Low cost alloy steels with yield strength about 50 per cent over that of ordinary open hearth and with a certain degree of corrosion resistance,

Courtesy of American Car & Foundry Co.

Grand Trunk Ry. dining car interior. Built by St. Charles Car Co.—1899.

have been used rather extensively in our new trains. There has been extensive publicity given to trains built from stainless steel—that combination of chromium, nickel and steel which is rustproof and in which high tensile strength is obtained by cold rolling of thin sheets. The various Zephyrs are illustrative of this construction. Aluminum alloys have also had a place in that the first Union Pacific trains were made of these metals.

Each of the various elements which go into modern passenger car design, namely: air conditioning, light weight construction and streamlining are broad subjects and extremely interesting ones and I can only mention them in passing.

Air-resistance to moving bodies, especially at high speed, has been recognized in the past, but this subject was not really scientifically studied until the advent of the aeroplane. The American Car & Foundry Company and affiliated companies made exhaustive tests in the wind tunnel at New York University and obtained valuable data regarding the power required to overcome the resistance of air to moving trains. From this data, the skilled car designer has been able to produce practical designs for which the power required to overcome wind-resistance is materially reduced.

Thus we now have streamlined, air-conditioned cars on the rails today which are proving that lost passenger traffic may be regained with clean, quiet, comfortable, fast, reliable and safe railway service at frequent intervals at a cost which appeals to the public compared with competitive forms of transportation.

Standardization of Time in Connecticut

By Sidney Withington

THE standardization of time on a national basis is now so commonplace that it is difficult to realize the fact that it was not until November 18, 1883 that it was finally accomplished. Even that accomplishment was not on any official basis, but merely by the action of the "General Time Convention of Railway Managers," under the Secretaryship of Mr. W. F. Allen; substituting four standards of time in place of forty-nine which had previously existed throughout the country. There was no national legislation in connection with Standard Time until March 1918, when Congress directed the Interstate Commerce Commission officially to establish limits for the various time zones which the railroads had developed.

The idea of standardizing time in Connecticut was vigorously advanced in 1880 by Professor Leonard Waldo of Yale, who on May 1st of that year arranged to impress clock signals twice each day from the Winchester Observatory clock upon the telegraph circuits, originally of the New York, New Haven & Hartford Railroad, and later of the Boston and New York Air Line, The Hartford and Connecticut Valley, the Connecticut Western and the Naugatuck Railroads, which were inter-connected for this purpose. Each telegraph office on each of these railroads thus received the signals, and its clocks were corrected accordingly.

Other railroads in the State at that time were apparently not interested in even approximately correct time, much less standard time, and there were at least three standards of time then in use east of the Connecticut River (Hartford, New Haven and New York) and two, west of the river (Boston and New London). This is noteworthy when it is considered that the difference in solar time between the eastern and western extremities of the State is somewhat less than eight minutes for at this latitude a distance of about thirteen miles east or west makes a difference of about one minute in solar time. The absurdity of the situation is even more clearly indicated when it is realized that the N. Y. N. H. & H. R. R. Standard Time received from the Yale Observatory extended from Greenwich on the southwest corner to New London on the southeast, and the Hartford and Connecticut Western operated on this same time up into the northwest corner of the State.

Harvard had for some time been providing time signals to the telegraph systems of the railroads radiating out from Boston, Massachusetts, and northern New England therefore pretty generally lived on Boston meridian time. Prof. Waldo thus based his efforts on experience already available in Massachusetts. He pointed out, however, that the logical datum meridian for Connecticut was the New York meridian, since it was the time "employed by four-fifths of the manufacturing and railroad interests" of the State. He wrote in 1880 "*By adopting this Standard, Connecticut is in sympathy with the wide expanse of territory be-*

tween Buffalo and Rhode Island and takes the first step towards dividing the country into large sections which shall have common standards of time."

There was thus established throughout a large portion of Connecticut, standard time based on New York City time, which was 11 minutes 46.3 seconds slower than Boston time. The City of New Haven immediately adopted this New York meridian time as standard, but Hartford continued to operate under three times, each of which controlled a large class of interests.

Prof. Waldo found great difficulty in obtaining adequate financial support for his efforts. During the first year Yale College incurred a debt of $1800 in maintaining this service which, wrote Prof. Waldo on Dec. 20th, 1880, was embarrassing because Yale did not have "the wealth of Harvard," and Harvard, furthermore received $3000 annually from the City of Boston, and private subscriptions of persons interested. He pointed out that Yale's deficit "would have been still larger but for the public spirit shown by the New York, New Haven and Hartford Railroad Company and a number of private gentlemen in New Haven."

In 1881 the Connecticut General Assembly progressed the idea of Standard Time in the State by passing the following law:

"The Standard of Time for the meridian of the city hall in the City of New York shall be and is hereby made the standard of time for this State.

"To enable this standard of time to be accurately determined and furnished each day the Comptroller of this State is authorized to contract with the corporation known as 'The President and Fellows of Yale College in New Haven' at a sum not exceeding two thousand dollars a year, to furnish such time at least once every day (except Sunday) to the New York, New Haven and Hartford Railroad Company, at their depot at New Haven, to be transmitted by telegraph by said railroad company, as railroad business, over its entire line and to all other railroad companies in this State connecting with said railroad.

"It shall be the duty of every railroad company in this State upon receiving such standard of time to transmit this same by telegraph, as railroad business, each day to all their depots having telegraphic communication, and to all other railroads having connection with them, and to keep at such depots a clock regulated by said time."

It will be noted that in this law no penalties for non-conformance were included and its administration was not as easy as had been contemplated, especially on account of the opposition of two or three of the railroad companies.

The New Haven and Northampton Company, for instance, on account of its "Hoosac Tunnel connections," was obliged to make use in its public time-tables of Boston time in Massachusetts, but for all its Connecticut stations adopted Connecticut Standard Time. On the New York and New England road when it was first opened to Brewster's, Boston time was used all the way through, but the annoyance was so great that the company was induced to adopt Connecticut time for its public time tables for all stations west of Hartford, and for the time of leaving Hartford for the west. It could not bring itself, however, to adopt the scheme of the Northampton road and give Connecticut time for all the stations in the State.

The broadcasting of standard time became at once very popular, and the Winchester Observatory at Yale soon received many applications from all parts of the State for the service to individuals. It was evident also that other states were interested in the precedent established by the Connecticut legislation in officially requiring standard time throughout the State, and in participating in the expense of its distribution.

The railroad companies in 1882 all agreed to comply with the law within the State, except the New London Northern and the New York, Providence and Boston Railroad, both terminating at New London, one from Palmer, Massachusetts, and the other from Providence, Rhode Island. This involved the continuance of three kinds of time in New London and two kinds of time in Norwich and Willimantic.

The idea of National time standard had been gathering strength, and in 1883 the General Railroad Time Convention, as indicated above, agreed upon National Standard Time Zones, and requested that the Connecticut law be amended to change the standard meridian for Connecticut from the New York City Hall to the seventy-fifth meridian west from the Greenwich Observatory in England, which had been chosen as the datum line for Eastern Standard Time. Needless to say, in view of the many advantages of general standards of time, the people of Connecticut were thoroughly cooperative in this movement, and as soon as the legislature next met, the law was modified to specify the seventy-fifth meridian; in fact, this revision was the first act passed at that session of the General Assembly of Connecticut of 1884.

The enactment of the original Connecticut law in 1881 referred to above, was the first result of an organized effort to relieve the public of the inconvenience of a multiplicity of so-called standards of time, and much credit for this must go to the efforts of Prof. Waldo, Yale College and the New York, New Haven and Hartford Railroad.

Seth Boyden

By Chas. E. Fisher

IN WASHINGTON Park, in the city of Newark, New Jersey, stands a statue dedicated to the memory of Seth Boyden. This statue bears the simple inscription

SETH BOYDEN

INVENTOR

It depicts a man in working garb, one hand resting on the anvil, his right hand holding something he has just produced. The monument was executed by the renowned artist—Earl Gerhardt and was erected by voluntary subscription of the citizens of Newark.

Seth Boyden was born in Foxboro, Massachusetts, November 17, 1788. His paternal grandfather was one of the "Minute men" who responded to the call of Lexington and Concord. His maternal grandfather, Uriah Atherton, manufactured cannon, mortars and all kinds of iron munitions for Congress for several years. Mr. Boyden's own father was a privateersman during the Revolution, was taken prisoner and confined in the prison ship "Jersey" at New York. From such stock descended Seth Boyden.

Of his early life we know but little, save for the fact that he was brought up on a farm. But from somewhere he inherited that ability to be able to do things with his hands that only others could do after long practice. At the age of fifteen we find him repairing watches. We know that he built a telescope of great power, that he made a rifle for his own use with a lock of ingenious construction. At eighteen he painted his own miniature, he engraved a label for his own books as well as a portrait of Washington.

At the age of twenty-seven, he left his home in Massachusetts and came to Newark, New Jersey. In 1818 we find him engaged in the manufacture of silver plated articles for horses and carriages. Being shown a piece of patent leather, glazed leather it was called then, he analyzed the coating and soon devised a process, producing a better article than had been shown him. The factory in which he carried on his silver plating work burned in 1818 and in December of that year he built a shop on Broad Street for the manufacture of patent leather. Here he made the first patent leather made in this country. He made but little in the beginning and sold what he made to the harnessmakers for blinds. In 1820 he made an oven that would hold sixteen skins and he finished about seven a week. His sales amounted to $4500.00 in 1822 and by 1828 they had risen to $21,500.00. In 1831 he sold the business out to a Brooklyn, N. Y. firm and thus was started in this country the patent leather industry.

It was while he was engaged in making patent leather that he discovered the process of making malleable iron. It seems that one day the fire bed of the furnace was torn down. He discovered that one of the

cast iron bars which had been near the fire bed had been subject to the heat of the fire and had the appearance of wrought iron while the rest of the bar, which was in the wall, had not. Taking the bar to a blacksmith's shop, he found he could draw the end that had been in the fire, but the other end was hard and brittle. By some process, unknown to him, part of this cast bar had regained fibre and softness, the other end was still hard and brittle. By dint of much experimenting in his own kitchen fireplace, he finally discovered, on July 4th, 1826, the process of making malleable iron. Soon afterwards he erected a small factory on Orange Street and later this was enlarged. His catalogue of articles manufactured listed one thousand plain and ornamental articles then in use. In 1828, at the exhibition of the Franklin Institute in Philadelphia, a premium was awarded him for an assortment of buckles, bits and other articles of annealed cast iron that were remarkable for smoothness and beauty. In 1838, he sold the business to a Boston firm for $25,000.00 that became known as the Boyden Malleable Cast Iron & Steel Co. The manufacture of malleable iron was first started by him in Newark and at one time there were eight malleable iron foundries in that city.

With the coming of the steam locomotive on the railroads, Seth Boyden turned his attention to the manufacture of them. We find that in 1836 he had commenced the manufacture of steam engines, hence it was only natural to find him interested in the locomotive. His first engine, the "Orange", was completed in 1837 and was sold to the Morris & Essex R. R. This engine had 8¼x26" cylinders and weighed about 14000 lbs. No counterbalances were used in the driving wheels and it is difficult to believe that trouble was not encountered with this long stroke and lack of counterbalance.

The year following, another locomotive, the "Essex" was built, and this locomotive was also delivered to the Morris & Essex R. R. The "Essex" had a cutoff designed for stationary engines. Whether there were any engines built between 1838 and 1841, we are not certain. We do know that in 1841 he completed the "Cometa" for the Cardenas R. R. of Cuba and accompanied this engine in order that it would be properly set up and put in good working order.

So far as we can learn, this was the extent of Seth Boyden's locomotive building activities. Altho' they were small, they were built the same time the famous Rogers Works were started. The "Orange" succeeded in drawing a train up a grade of one hundred forty feet to the mile, a feat believed impossible to accomplish. Seth Boyden did not use cranked axles, he placed his driving rods outside whereas other American builders were following the British idea of inside cylinders, the rods between the frames. Mr. Boyden is credited with being the first to do this in this country.

Not discouraged with his locomotives, Boyden continued to build stationary steam engines. In 1845 we find that he applied for a patent for a device "connecting the governors of the steam engine to a cut-off valve, so that the steam is let into the cylinder at full pressure, and shut off by the aid of a governor at any point the variation of labor may require, leaving the steam to finish its work by expanding, until the piston reaches its returning point." On being informed by the Patent

Office that he must file a model, he characteristically paid no heed and the matter was dropped. Others may have conceived the same idea as he, in reference to the cut-off to regulate steam, but that does not detract from the credit due him. Mr. Boyden is quoted as follows: "My first improvement in stationary steam engines was the cast iron frame or bed, my next was the introduction of the straight axle to the locomotive in place of the crank, which is now universally used; my greatest invention in the steam engine was the cut-off and the governor together." In addition to the foregoing, we find that Cyrus R. Woolson, the engineer of the "Essex" and Luke F. Tronson, the engineer of the "Orange" both spoke of these locomotives in the highest terms.

In addition to the above, he appears to have invented a duplex valve gear such as is now found in the valve gearing of the best steam duplex pumps. This was applied to the locomotive "Essex" and, so far as we can learn, worked successfully.

He discovered a process for the manufacture of Russia sheet iron. Heretofore the process had been too expensive to compete with the foreign article, but, in 1849, Boyden sold his secret to some men of high commercial standing and the manufacture of that article was begun in this country. He took no means of securing himself against the disclosure of his secret except by exacting pledges from those he sold the process.

His inventions were numerous. His first appears to have been a machine for making wrought iron nails, invented in 1810. Then came that of making a machine for making brads and files of different sizes and for cutting and heading tacks of different sizes, invented in 1813. Machines for cutting brads and heading tacks were in use in Newark in 1816. Then came a machine for splitting leather. This was first used to shave down the inequalities of the leather in order to present a smooth surface. It was afterwards improved and applied to splitting hides and then to splitting other substances.

For a long time the zinc ores of the State of New Jersey were of no value because it was impossible to smelt them. About 1848 Mr. Boyden discovered a process for producing the spelter from the ore, but soon afterwards, he got the "gold fever," went to California where he remained two years, returning to Newark with but little of that precious yellow metal.

He produced the first daguerreotype in this country. This was from a description of Daguerre's sun picture. Daguerre required from three to five minutes to make a picture. Seth Boyden improved the process, refined his chemicals, was the first to use a reflector, the latter coming from his home made telescope and reduced the time to less than a minute. Professor Morse, learning of the improvement, witnessed the process and out of this acquaintance grew a close friendship between the two. Whether Seth Boyden played a part in that invention of the telegraph, we do not know, but we do know that Professor Morse consulted with him in overcoming some of the mechanical difficulties.

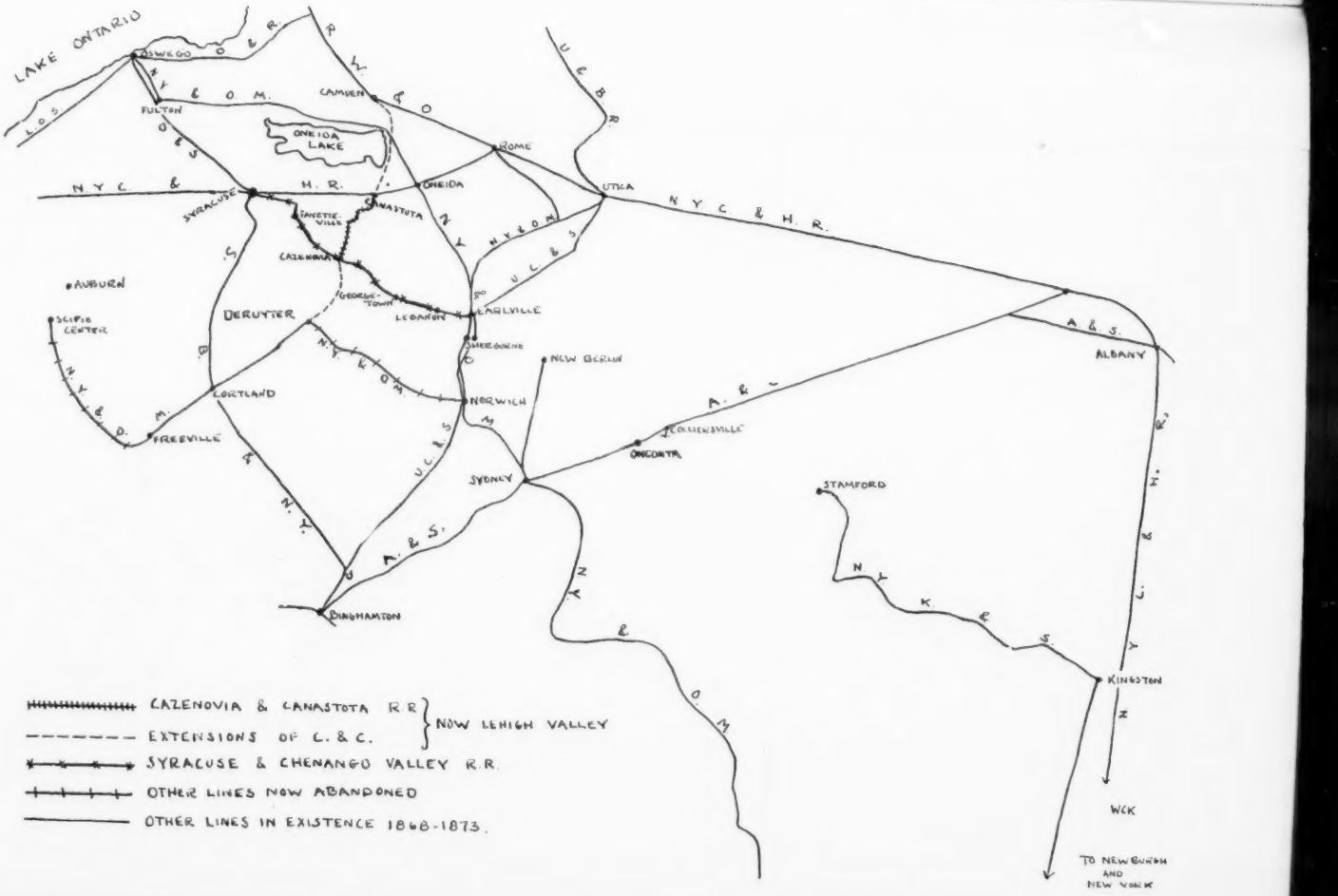
Mr. Boyden was the inventor and patentee of an improvement in machinery for the forming of hat bodies. This invention, the subject

of much litigation but his right to it was fully vindicated, came along the latter years of his life. It was the only one of his numerous ideas that he did protect with a patent for himself.

Later years, with losing sight, he turned his attention to horticulture. He cultivated the strawberry and studied botany to aid him. He became famous for the improvement of this berry, producing a variety that is still called by his name. By cultivation he increased the size enormously and some of his varieties, fifteen of them weighed one pound. They were equally well flavored. He was successful also in the cultivation of grapes.

With only a meagre education, he studied to a good purpose. He acquired a knowledge of optics, chemistry, metallurgy, electricity, astronomy, geology, botany and natural philosophy. He wrote and published discourses on electricity and the natural heat of the earth. Nature seemed to withhold from him nothing, knowledge spread her broad pages before him and no secret of the mechanical arts was safe from his keen and inquisitive search. True, he died on March 31, 1870 a poor man, but what he did to improve our mode of living during the formative years of this nation and what he gave freely of his toil and best efforts cannot be measured in dollars. He gave in order that humanity and mankind might have it, with no thought to his own bodily comfort.

On May 14th, 1890, the statue now standing in Washington Park was dedicated. Here, amid the familiar scenes to Seth Boyden, with his workshop but a short distance away, stands this statue, a silent, impressive and unimpeachable witness of the fact that the first statue erected in the city of Newark by voluntary contributions was in honor of a mechanic. It was a proud day for honest labor, for never before in this or in any other land had labor received such recognition. Moreover, it should serve as an incentive for every laborer and every mechanic to try and do something for the benefit of his fellow-man and to make the world a better place to live in. As for Seth Boyden, he served his Maker by serving his fellow-men, but in the words of the late Secretary Frelinghuysen, he was "the peer of any man."


LAKE ONTARIO
L. O.
OSWEGO
O & R
R. W.
Y. & O. M.
FULTON
CAMDEN
R & O
U. & B.
ONEIDA LAKE
ROME
O. & S.
N. Y. C. & H. R.
ONEIDA
UTICA
SYRACUSE
CANASTOTA
CANASTOTA
N. Y. & O. M.
U. C. & S.
CAZENOVIA
AUBURN
GEORGE-TOWN
EARLVILLE
DERUYTER
LEBANON
SCIPIO CENTER
SHERBURNE
NEW BERLIN
ALBANY
N. Y. & O. M.
CORTLAND
NORWICH
FREEVILLE
A. & S.
CHENANGO VALLEY
ONEONTA
SYDNEY
STAMFORD
N. Y. & K. & S.
BINGHAMTON
KINGSTON
W. C. K.
TO NEWBURGH AND NEW YORK
CAZENOVIA & CANASTOTA R.R.
EXTENSIONS OF C. & C.
NOW LEHIGH VALLEY
SYRACUSE & CHENANGO VALLEY R.R.
OTHER LINES NOW ABANDONED
OTHER LINES IN EXISTENCE 1868-1873.

Some Notes on the Origin of the Syracuse and Chenango Valley Railroad

By William Conrad Kessler

ON JUNE 17, 1937, the Interstate Commerce Commission authorized the West Shore Railroad, a subsidiary of the New York Central, to abandon operation of that portion of its Chenango Branch running from just below Cazenovia, New York, to Earlville, a distance of about twenty-three miles. The Chenango Branch in its entirety is thirty-six miles long and extends from the main line of the New York Central at Chenango Junction, just east of Syracuse and runs in a southeasterly direction thru Fayetteville, Manlius, Oran, Cazenovia, Eritown, Georgetown and Lebanon to Earlville, connecting there with the New York, Ontario and Western.

A discussion of this branch line, known originally as the Syracuse and Chenango Valley Railroad, is interesting because it illustrates several points of interest common to the development of the railroad network of the United States. For one thing, it reflected the prevailing optimism and the great ambitions of the people who financed and built most of our railroads. Secondly, it revealed the great desire of the people along the line for railroad transportation. Thirdly, it showed the influence of the important factor of competition for the traffic of surrounding regions which prevailed among the various centers of population and the local jealousies which came about as a result of conflicting desires.

As a beginning, let us have some dates. This railroad was a result of the revival in business activity which appeared after the temporary let-down following the Civil War. It was incorporated on April 15, 1868 and on May 7, of the same year, it was permitted to take over the franchise of an earlier line which did not get beyond the preliminary surveys—the Syracuse, Fayetteville and Manlius Railroad. There followed the usual frenzied attempt to obtain funds from the towns and individual investors along the way. Capital was finally obtained through the bonding of Georgetown, Lebanon and Nelson, the guarantee of railroad mortgage bonds by Syracuse and purchases of stock by individuals, including even Cazenovians. Work on the roadbed was begun in June, 1870 and on the day after Christmas in 1872 the track was completed to Earlville. Trains commenced running on February 13 (Friday?) 1873.

Now as to the ambitions of the S. & C. V. R. R. Like many other branch lines of the country, it was not originally intended to become a mere feeder to the Central. It was actually supposed to become part of a line which was to offer keen competition to its older brother. Just as railroad promoters in the West, no matter how short their lines, looked to San Francisco and the Orient and those along the Atlantic Coast looked to the Mississippi and the Great Lakes, so did the Syracuse promoters plan a new short-line to New York City, from Lake Ontario and the Salt City.

It seems that in August, 1868, a meeting of various promoters was held at Saratoga Springs at which time the plan was discussed of giving Commodore Vanderbilt some new competition over the hills of New York. A line was being built by Homer Ramsdell from a point on the New York and Erie to Newburgh and another line was crawling over the Catskills from Rondout (near Kingston) to Colliersville, which is a few miles east of Oneonta. A line existed on paper between Newburgh and Kingston to connect these two routes. Apparently it was part of the plan to close the large gap between Oneonta and the projected Syracuse line by obtaining trackage rights over the Albany and Susquehanna west to Sidney, from there over the New York and Oswego Midland (now known as the New York, Ontario and Western) in a northerly direction to New Berlin. From New Berlin a new line would be built west to Sherburne or Earlville. Since there was already a line from Syracuse to Oswego this project would form a new Lakes to New York line with prosperity for all—especially for Syracuse! In fact, there is good reason to believe that the entire plan was the result of the failure of Syracuse to get the Midland line then being constructed out of Oswego. Since its financial offers were not attractive enough, the Midland was being built around the northeast corner of Oneida Lake to Oneida and the South. Thus the new line would certainly make the Midland promoters rue the day when Oneida was favored against Syracuse.

According to some optimistic minds, the "Short Line" would get coal from the Delaware and Hudson Canal Company at Rondout on the Hudson, timber from the Catskills, more coal and some manufactures from the A. & S. at Oneonta and, of course, the riches of the Golden West at Syracuse and Oswego, as well as the agricultural products of rich central New York State. Besides, it would be fifty-five miles shorter than the Central's line from Syracuse to New York and it would even have good connections to Albany (via the A. & S.) and to New England at Newburgh (via Rhinecliff and the Rhinebeck and Connecticut). All this would help Syracuse to surpass even Oneida with its Midland and Utica with its Utica, Clinton and Binghamton and its Utica, Binghamton and Susquehanna Valley and Rome with its Rome and Watertown and its Rome and Clinton!

This brings us to the factor of competition. There were fields for the S. & C. V. to conquer far nearer than the Hudson River Valley and New England. Cazenovia, twenty miles out on the line, was a thriving distributing center and had already begun construction of a line partly financed and managed by its own people. This was the Cazenovia and Canastota Railroad, a line fifteen miles long which gave Cazenovia a connection with the Central at Canastota. It, also, had other ambitions which were actually fulfilled, at least as far as the construction was concerned, if not the financial returns. The good people of Cazenovia also wanted their share of the traffic from the Lakes and Canada which was at that time coming down from Watertown to Rome over the Watertown and Rome Railroad. They wanted to tap this artery of commerce at Camden, above Oneida Lake, thru an extension of their line from Canastota to there and they also planned to get the trade of the towns south

of their village by building from Cazenovia to DeRuyter, connecting there with the Midlands ill-fated branch to Courtland and Auburn. Naturally, such ambitious people who hoped to make their country "one of the wealthiest inland counties of the State" looked with distrust upon the attempt by Syracuse to siphon off some of their wealth for itself. Much newspaper ammunition was used up to combat the S. & C. V. R. R. The Syracuse line would make Madison County (in which Cazenovia was located) a mere appendage of the Salt City; the line would never succeed in obtaining sufficient capital; its dreams of a line to New York were hopeless of fulfillment; it would cut into the traffic of the C. & C. (an important consideration), etc.

However the Chenango Valley line was finally built and trains were running on it two years after the first train puffed over the C. & C. into Cazenovia. Although the other lines of the New York project were finally completed (notably the Ulster and Delaware), no attempt was made to fill in the gap between New Berlin and Earlville, despite the hopes of the people in the former village that they would soon see the freight trains of the Midland pass through there because of the heavy grades on the Midland's own line from Sidney to Norwich. Probably the panic of 1873 and the ensuing long period of depression were the immediate causes of the failure of the plan. Furthermore, Syracuse finally did get another New York connection with the construction of the line through Cortland to Binghamton (the Syracuse and Binghamton, now a part of the Lackawanna). The project lacked the guiding hand of one person to direct it and involved the cooperation of number of short lines. Most of the territory through which it was to be built was quite rugged and much capital would have been necessary to construct and maintain the line. Even if it had been completed, it is highly doubtful if such a crooked, up and down line could have competed with the Central's "water level route." Capital was well-advised in staying away from it.

After many failures in 1890 the Chenango Valley line was finally acquired by that ubiquitous competitor of the Central, the West Shore, and it later became the property of the N. Y. C. when the West Shore surrendered its independence. In recent times its fortunes have followed the example of many American branch line railroads which have outlived their economic usefulness. In 1933 passenger service was discontinued and there remained one freight train making a round trip daily. Despite the protests of farmers, the Dairyman's League, the County Treasurer (Madison County is said to lose $7000 a year in taxes) and towns which financed the road in the beginning, the line has been taken up below Cazenovia, which still provides some traffic.

Its old rival for the Cazenovia market—the C. & C.—still stands, although it is now owned and operated by the Lehigh Valley. Incidentally, this road has applied to the Interstate Commerce Commission for permission to abandon the Canastota-Camden extension, the line which was to have diverted some of the wealth of the Romans to the Cazenovians! Such is the end to the dreams of the '70s.

Abbreviations shown on the map are as follows:

A & S	—Albany & Susquehanna (Delaware & Hudson) R. R.
G	—Greene Railroad
L. O. S.	—Lake Ontario Shore R. R.
N. Y. & O. M.	—New York & Oswego Midland R. R.
N. Y. C. & H. R.	—New York Central & Hudson River R. R.
N. Y. K. & S.	—New York, Kingston & Syracuse R. R.
O. & R.	—Oswego & Rome (R. W. & O.) R. R.
O. & S.	—Oswego & Syracuse R. R.
R. W. & O.	—Rome, Watertown & Ogdensburg R. R.
S. B. & N. Y.	—Syracuse, Binghamton & New York R. R.
U. & B. R.	—Utica & Black River R. R.
U. C. & S.	—Utica, Chenango & Susquehanna R. R.

The Hoosac Tunnel and Wilmington

By Capt. W. W. Robinson

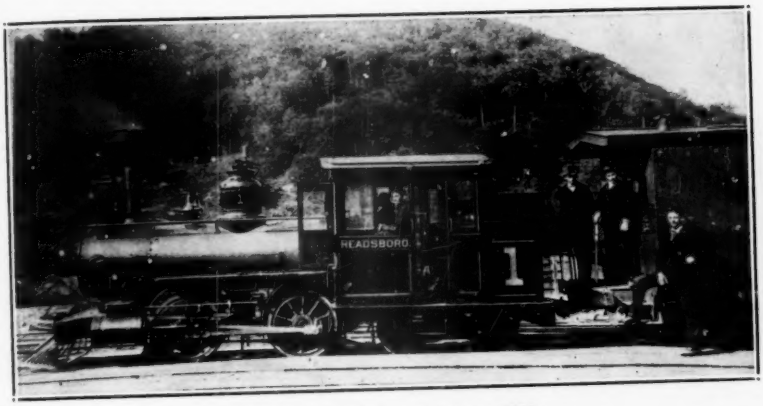
THE purpose of this paper is not to present an extensive and detailed history of the above railroad, familiarly known to the older residents of the territory as the "Hoot, Toot and Whistle," but merely to record such pertinent facts as are necessary to a general outline of its origin and development.

This line was a project of the Newton Brothers Paper Company of Holyoke, Mass. The company owned extensive timber lands near Readsboro, Vt., and operated a saw mill and a large paper manufacturing plant in that village. This concern held the land and buildings in Vermont in the name of a subsidiary called the Deerfield River Company.

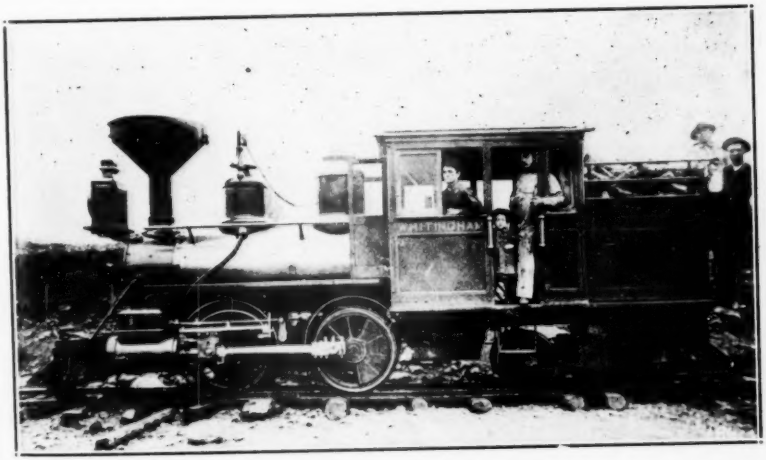
A share of the wood for the plants at Readsboro came from the company's own lands, but the larger portion of it from the farmers and lumber men along the course of the Deerfield River north from Readsboro. This timber was floated down the river to the mills. The finished product was hauled by oxen from Readsboro to Hoosac Tunnel where it was loaded on the cars of the Fitchburg Railroad. This was a slow and unsatisfactory mode of transportation and to facilitate the handling of their products the company constructed in 1884 a single track, narrow gauge, steam railroad from a junction with the Fitchburg Railroad at Hoosac Tunnel to the state line at Sherman, Vt.

The records of the Commonwealth of Massachusetts at Boston do not show that this line of railroad was given a name or incorporated. Being under private ownership and operated entirely for the company's own business it probably was not necessary to form a separate corporation. In Poor's Manual of Railroads for the year 1885 it is referred to as the "Deerfield River Company's railroad," and further adds, "Projected to run from Hoosac Tunnel to Readsboro, eleven miles, of which eight miles are completed from Hoosac Tunnel, Mass., to Sherman, Vt. This road is being built by the Deerfield River Company to reach its pulp and saw mills at Readsboro. It will be used chiefly for hauling wood pulp from the mills and materials for them."

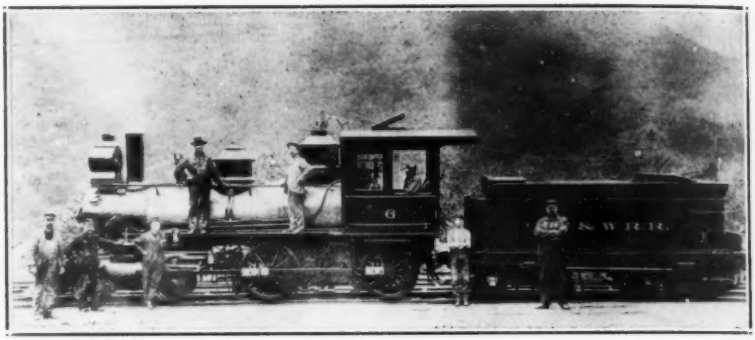
The Newton Brothers applied to the Legislature of the State of Vermont for a railroad charter and on November 26, 1884 the Deerfield



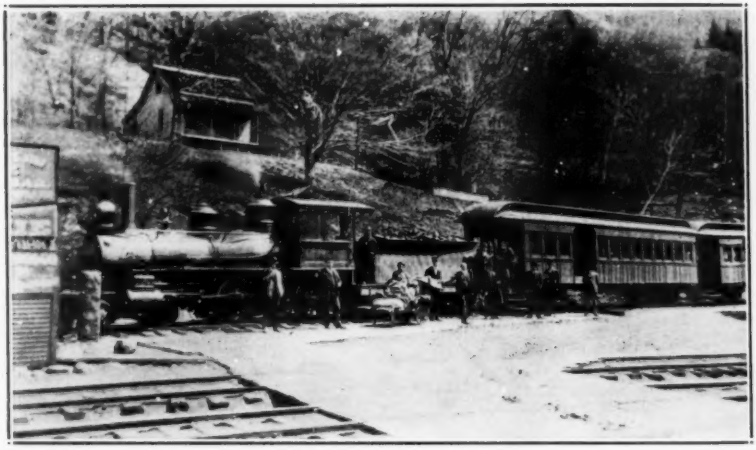
H. T. & W. "Readsboro"—Baldwin, 1884.



H. T. & W. "Whitingham"—Baldwin 1886.



H. T. & W. #6—Baldwin.



H. T. & W. #6 and Train.

Valley Railroad Company was incorporated under the laws of that state to "build a railroad with single or double track, with standard or narrow gauge, commencing on the southerly boundary line of the State of Vermont, in the townships of Whitingham or Readsboro, and running thence by the most convenient route through any or either of the following named townships, viz. Whitingham, Readsboro, Stamford, Wilmington, Searsburg, Dover, Somerset, Glastenbury, Woodford, Stratton, Winhall, Manchester, Sunderland, Arlington, Shaftsbury and Bennington." Under this charter the Deerfield River Company continued its line from Sherman to Readsboro in 1885 and stopped there.

After the line was in operation it was found that a considerable volume of public business could be conveniently and profitably carried, in addition to the company's private traffic, and therefore the owners of the railroad organized, December 28, 1886 under the laws of Massachusetts, the Hoosac Tunnel & Wilmington Railroad Company, the charter granted permission to acquire the single track, narrow gauge, steam railroad of the Deerfield River Company in Massachusetts, including two locomotives and other rolling stock. The officers of the new company, as well as that of the Deerfield Valley Railroad, were Daniel H. Newton of Holyoke, President; Moses Newton of Holyoke, Vice President; John C. Newton of Holyoke, Treasurer; Charles S. Newton of Holyoke, General Manager; Ernest P. Cox of Holyoke, Clerk of Corporation. The general office of both companies was at Holyoke and the operating office at Readsboro.

On the old maps of Vermont there is shown a branch line running from Readsboro, following the west branch of the Deerfield River, to the village of Hartwellville, a distance of about four miles. Undoubtedly it was the intention of the owners to have such a branch, as it is referred to in Poor's Manual, but only about one half mile was constructed from the Readsboro depot to the plant of the Readsboro Chair Company on the westerly outskirts of the village.

It will be seen from the fifth paragraph above that the Deerfield Valley Railroad Company's charter granted permission to run practically anywhere its officers wished in the eastern part of Bennington County and the westerly portion of Windham County. Under this privilege construction was commenced in October 1890 from Readsboro to Wilmington, thirteen miles, and the extension was opened November 4, 1891.

January 1, 1892 the Hoosac Tunnel & Wilmington and the Deerfield Valley were consolidated under the name of the Hoosac Tunnel & Wilmington Railroad Company, main line with branch 28 miles, having six locomotives, five passenger coaches, twenty-five freight and flat cars and two cabooses. The officers and directors of the new corporation were Daniel H. Newton, President, Holyoke; James Ramage, Vice-President, Holyoke; James S. Newton, Secretary, Holyoke; John C. Newton, Treasurer, Holyoke; Moses Newton, Superintendent, Holyoke; William S. Stiffler, Assistant Superintendent, Readsboro; Edward W. Walther, Chief Engineer, Holyoke; William B. McClellan, General Freight and Passenger Agent, Wilmington; George W. Millar of New York City and Ernest P. Cox of Holyoke. General offices were at Wilmington.

Some time after the turn of the century, with the closing of the mills at Readsboro, control of the railroad property was acquired by a banking firm in New York City and the following officers were chosen: President, John P. Kellas of Malone, N. Y.; Treasurer, L. M. Kellas of Malone; Secretary, John W. Genaway of Malone; Auditor, Henry E. Mann of Wilmington; Superintendent, K. S. Macteer of Hoosac Tunnel.

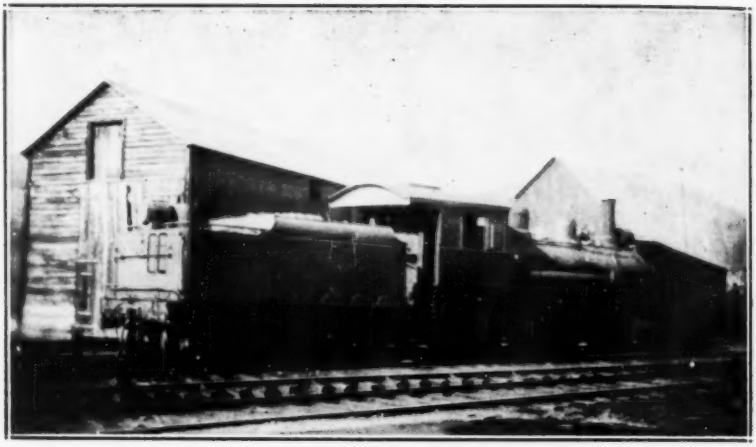
In 1920 the New England Power Company commenced construction on the Whitingham dam to form a reservoir extending through the Deerfield River valley between Readsboro and Wilmington, about twelve miles long. This watershed was intended to take in nearly ten miles of the railroad's right of way. In order to proceed with the project the power company found it advisable to purchase the railroad, which was done and the right of way was moved westerly some distance from its original bed, between the stations of Whitingham (Davis Bridge post office) and Mountain Mills. A short time previous to this the road had been changed from narrow to standard gauge its entire length.

After the dam had been built, the reservoir lake formed and the right of way moved, the power company found it unwise to operate the railroad and it was accordingly sold to the owners of the Readsboro Chair Company, one of the largest shippers on the line, and it has been conducted since that time by such interests. Albert B. Clark, president of the chair company and also of the railroad, died in the latter part of October 1935 and was succeeded by Charles H. Pope of Readsboro. The other present officers and directors are Henry I. Harriman of Boston, Vice President; Carlton T. Phelps of North Adams, Secretary and Treasurer; Henry E. Mann of Wilmington, Auditor and Traffic Manager; William B. McClellan of Wilmington, Superintendent; F. E. Morrissey of Bennington, Counsel; Philip E. Barre of Readsboro, Master Mechanic; F. S. Crafts of Wilmington and P. E. Hodgton of Monroe Bridge.

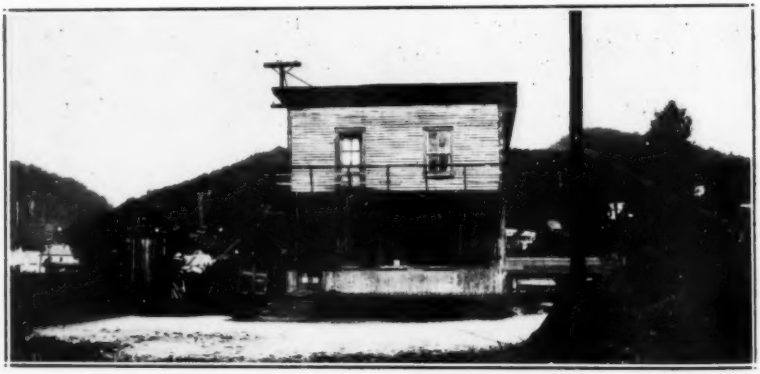
It is said that in olden times the railroad did a very profitable freight and passenger business, but in recent years the automobile and motor truck has robbed it of most of its traffic. Depots at Logans, Heywood and Sherman have been torn down; those at Whitingham, Jacksonville and Mountain Mills are far under water. Hoosac Tunnel, Monroe Bridge, Readsboro and Wilmington are the only stations doing business with no agent at Monroe Bridge. Three section gangs are maintained. For a few months a gasoline motor car was used in passenger service, but this did not prove profitable and now there is no passenger business on rails. The company operates a bus making two trips daily in each direction, following the Deerfield River from Hoosac Tunnel to Readsboro and the improved highways to the villages of Whitingham, Jacksonville and Wilmington. This bus carries such passengers as present themselves, the mails and the smaller express packages. A freight train makes a daily trip from Readsboro to Hoosac Tunnel and return and three times a week runs through to Wilmington hauling a few box and coal cars and the bulky expressage. This is the extent of the traffic today. With the Interstate Commerce Commission at Washington now about to assume control and supervision of the motor carriers it is expected that some benefit will come to the H. T. & W., in the return to its line of a portion

H. T. & W. #9—at Readsboro Shops.

H. T. & W. #9—Grant, 1850.



H. T. & W. #39—Rhode Island, 1911.



The depot at Readsboro, Vt., in 1935. Formerly the general office building of the D. V. R. R. and the Deerfield River Company's railroad in Mass.

of its once profitable traffic. Certainly the company is deserving of success. Its entire personnel, from the president down to the humble track worker is most efficient and has remained loyal to the railroad through all the trying times of the past few years. For their sakes, if for nothing else, it is our hope that a fair and honest regulation of the company's competitors will bring them their reward.

Of the original incorporators there is still living Charles S. Newton who resides in Los Angeles. Mr. McClellan, whose service dates back to the late eighties, is the present superintendent. Mr. Barre, the master mechanic, and Mr. Faulkner, the present locomotive engineer, were in engine service when the road was narrow gauge and both were hauling passenger trains when that branch of the service was at its height.

HOOSAC TUNNEL AND WILMINGTON RAILROAD LOCOMOTIVE ROSTER

No.	*Name*	*Builder*	*Year*	*Type*	*Gauge*	*Disposition*
1	Readsboro	Baldwin	1884	0-4-4	3'0"	Now resting in the Deerfield River.
2	Whitingham	Baldwin	1886	0-4-4	3'0"	Rebuilt as No. 7.
3	Jacksonville	Mason	?	0-4-4	3'0"	Scrapped.
4	Monroe Bridge	Baldwin	?	4-4-0	3'0"	Sold to the San Ramon Sugar Plantation, Cuba.
5	Sherman	Baldwin	?	4-4-0	3'0"	Dismantled with No. 6 and the two rebuilt as one and numbered 8.
6	Hartwellville	Baldwin	?	4-4-0	3'0"	Dismantled with No. 6 and the two rebuilt as one and numbered 8.
7	Newton	Baldwin	1886	4-4-0	3'0"	Sold for scrap in 1920.
8	Readsboro	Baldwin	1895	4-4-0	3'0"	Sold for scrap in 1915.
9	Mountain Mills	Grant	1890	2-8-0	3'0"	Sold to San Ramon Sugar Plantation, Cuba.
10	Wilmington	Grant	1892	2-8-0	3'0"	Sold to San Ramon Sugar Plantation, Cuba.
14	..... (a)	Altoona	1883	4-4-0	4'8½"	Scrapped
15	..... (b)	Baldwin	1890	2-8-0	4'8½"	Scrapped
20	..... (c)	Brooks	1891	2-6-0	4'8½"	Scrapped
21	..... (d)	Brooks	1892	4-6-0	4'8½"	On hand in service.
39	..... (e)	Rhode Is.	1911	2-8-0	4'8½"	On hand in service.

(a) Ex Pennsylvania R. R., #996 rebuilt by Southern Iron & Equipment Co., Atlanta, Ga.
(b) Ex Western New York & Pennsylvania R. R., and rebuilt by the Southern Iron & Equipment Co., Atlanta, Ga.
(c) Ex-Lake Shore & Michigan Southern R. R.
(d) Ex-Lake Shore & Michigan Southern R. R.
(e) Ex-Boston & Albany R. R.

Since this paper was prepared, the Hoosac Tunnel & Wilmington R. R. has purchased another locomotive. This was the #5 of the Washington, Brandywine & Point Lookout R. R., operating between Washington, D. C. and Point Lookout, Md. The engine is of the 2-6-0 wheel arrangement, built by Baldwin Locomotive Works, construction #58005, June 22, 1922, with 15x20" cylinders, 42" drivers and a weight of 83500 lbs. It will carry the same road number on the H. T. & W. Also, H. T. & W. #39 was cut up for scrap in February, 1938.

History of the Moira & Bombay Railroad

By Lawrence Doherty

THE Moira & Bombay railroad is typical, I think, not only of the short lines of Northern New York State, but of short lines in general. Built at a time everyone had dreams of a railroad empire, it too failed to consider what would happen if a change in conditions would result, and thus, paid the penalty for their short sightedness.

It might be well, at this point, to go back a bit and look at conditions which were contributory to its building, and to do this, we must peruse the history of the Central Vermont Railway and its consolidation program in the later half of the 1880's. I quote in summary, "The Central Vermont Railroad management acquired by purchase or lease after 1873 a score of railroads approximately aggregating to 700 miles, making a total system of over 900 miles. Some twenty more short lines and other divisions were added—as well as two steamship lines—making the Central Vermont system the seventh largest railroad in the United States, and the greatest in the East" and "this great system then consisted of 20 railroads as well as steamship lines on the Great Lakes and Long Island Sound."

One of the railroads in this system was the Odgensburg & Lake Champlain, the Grand Trunk providing the all-rail and the O. & L. C. the rail-water route, the water transportation being handled by a subsidiary, the Odgensburg Transit Company, organized December 2nd, 1888.

The Grand Trunk, in 1888, had a line extending from Huntingdon, Quebec, Canada, thru Bombay to Massena, New York. The distance from Moira to Bombay, being 8½ miles. Mr. E. C. Reynolds of Bombay, knowing the above facts, figured that the short connecting line he wanted to build between the two points, would be valuable in interchange between the two parts of the Central Vermont and Grand Trunk Systems. He foresaw a vast amount of business, since his road would eliminate the hard pull into Massena, as well as the grade into Odgensburg. Also, shipments from the West, via the Central Vermont's steamers, routed to Montreal, could be unloaded at Ogdensburg, thence O. & L. C. to Moira, thence over his road to the Grand Trunk into Montreal, thereby avoiding the rapids of the St. Lawrence River, below Odgensburg.

All this reasoning, inaccurate tho' it turned out to be, must be admitted to have been shrewd, especially when one considers that, "The Ogdensburg Transit Co., had extensive wharf facilities—with capacity for one million bushels of wheat—as well as other freight—the company handled between six and eight millions of bushels of wheat alone, for several years—in addition to other vast amounts of traffic." Mr. Reynolds reasoned that even tho' he might get but a fraction of this business, it still would make his railroad a paying proposition.

The rights-of-way having been acquired, Mr. Reynolds went to the Central Vermont with his proposition, and, got the financial help he

needed. The railroad was built in 1888-89. In 1891 a company was organized by the Moira & Bombay Railroad to build a line from Bombay to Hogansburgh, New York and then the extra distance to the banks of the St. Lawrence River, where it was intended to build water facilities. This last project, however, never went beyond the paper stage, luckily for the investors.

Mr. Reynolds' dream never materialized, however, as the Central Vermont and the Grand Trunk became involved in legal difficulties, to such extent that the interchange over the M. & B. never took place on anywhere near the scale visioned, either by Mr. Reynolds or the C. V. The railroad was sold under foreclosure proceedings in 1897 and the rails were taken up by a Grand Trunk wrecking crew in 1900 and sold for scrap. Thus, the dream ended!

A few facts now about the road while it was in operation. The only living man who worked on the construction of that road that I can find is William Revette of Malone, New York. O. & L. C. locomotives, (because the C. V. controlled it) were used on this road. Some of the ones used there were No. 12, the "Welland," No. 6, the "Abraham Klohs." (she was later the 306 Judge Foster), No. 331, the "Timothy Hoyle" No. 17, the "Economy," as in all probability, did others in the O. & L. C. roster.

Jack Chilton, of Ogdensburg, who, until his death several years ago was senior engineer on the O. & L. C., now Rutland, ran the construction train on that railroad, (the M&B) when it was built, using engine No. 29, the "S. A. Carlton." Other engineers who ran there were, Pat Foy, Mort Dewar, Jim MacGuire. Firemen were, Charley Turner, Nile Lockwood, Bill Collopy and Watson Hunkins. (Charley Turner is now senior Rutland engineer with 45 years, Lockwood next with 38, Collopy now in the shoe business at Malone, while Hunkins is engineer on the Utica-Montreal division of the New York Central.)

The brakemen who worked there are, Ed Gordon, Henry Savage, Fred Mullvany, Geo. MacGinnis and Frank Sessions, all these men later Conductors on O. & L. C., but now dead. Conductors were, Homer Maloney, Henry Stone, Nelson Spencer as well as Frank Sessions.

The only station agent the line ever had was Mr. Mowat at Bombay. He must have been a busy fellow as he was agent, operator, dispatcher, freight handler, bookkeeper, etc.

The daily train, with few exceptions, the only one, was a mixed train, consisting of one or more freight cars and a combination coach, lettered, I am told "Saratoga & St. Lawrence." Where she ever came from, or where she ever went, I cannot find out. The train left Bombay in the morning, went to Moira, where O. & L. C. way cars were picked up. The train then "peddled" to Churibusco, where they turned on the wye, returning to Bombay at night. Train number was 27, and tied up in Bombay over Sunday.

Jerry Crowley, who was then M. of Way Supervisor for the O. & L. C. maintained the Moira & Bombay trackage. In connection with the trackage an interesting note comes from Mr. Collopy of Malone. In preparing for the sale of the property, an inventory was necessary, and

"Bill" was delegated to walk the 8½ miles from Moira to Bombay to count the ties in the roadbed, as well as to get other information. His record, shown me the other day, shows that there were 22,547 ties in the distance between yard limits.

The Moira & Bombay railroad is now but a fading memory, as is the dream of the late Mr. Reynolds. There have been thousands of these dreams that failed, where one succeeded, and, yet, without the vision and dreams, coupled with hard work, the glorious history of American Railroading would never have been written, and its omission would have been well nigh fatal to the progress of America.

Sawyer River Railroad

By Harold S. Walker

History

The Sawyer River Railroad was constructed in 1876 in connection with the organization of the Livermore Lumber Company, which erected a sawmill at Livermore, Grafton County, N. H., a few miles south of Crawford Notch. It was just a lumber railroad, but in a land of beauty unexcelled. The main line was only eight miles long but it wound its dizzy way along the high banks of the Sawyer River unmolested by the turbulent waters below, and untouched by the freshets in the Spring. It came into being simply because a mountain sawmill needed access to the world outside, yet it partook of the romance of the lonely mountains that towered above it.

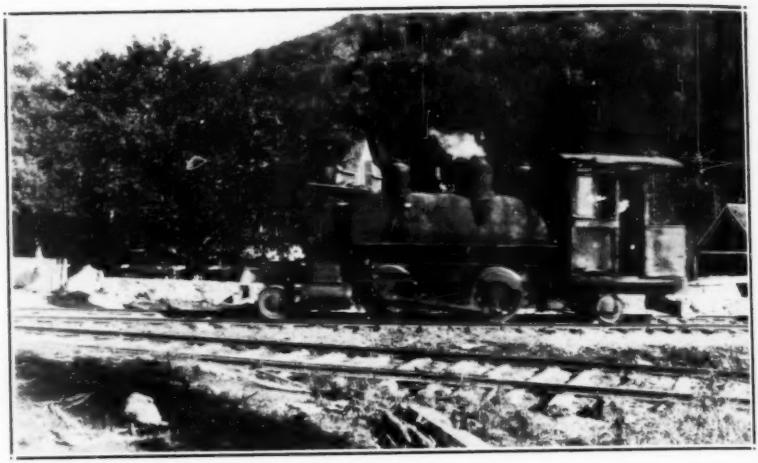
The railroad ran from the main line of the Portland & Ogdensburg R. R., which had been opened only the year previous, to Livermore, about two miles south. From thence it extended into the forest. The end of the line was only about four miles from the forest terminus of the East Branch and Lincoln R. R. which ran northeast from Lincoln, N. H., but the two roads never met, being forever separated by an intervening mountain range.

There was a station, engine-house, general office and yard at Livermore, and a spur track at Sawyer on the P. & O. (now Maine Central) R. R. One regular train each day was operated between April and November, connecting with a northbound and a southbound train at Sawyer River.

The road's career was marred by one serious accident. A girl canvasser, Gallaher by name, rode down from the forest camps in the cab of the locomotive. The train got out of control on a long grade and as the speed became dangerous she was told to jump. She jumped into the deep snow beside the track, struck the steep side bank thrown up by the plow, and rolled under the engine.

The "C. W. Saunders" #1, with crew—Sept. 1907.

The "Saunders" with new tender after the wreck, without cab—Sept. 1909.



The #4. at Livermore, Oct. 1920.

Track along Sawyer River. Mt. Carrigain in distance.

The railroad never had a mail contract and the rural mail carrier had to make his way from Bartlett over an almost impassable road. Even in recent years the automobile road into Livermore was so narrow and so steep that it was customary to telephone in to the village to find out if any cars were coming out before attempting the arduous trip.

The mill and railroad operations ceased in 1928. In 1935 the United States Government decided to extend its forest holdings in this vicinity and its purchases included all of the land served by the railroad as well as the town of Livermore and the mill. Most of the road's equipment has been scrapped already, the town is being removed, and soon, with the exception of a new highway that is being built, every vestige of civilization will be obliterated and the wildness will claim its own.

Equipment

The first locomotive owned by the road, an 0-4-0 type named "C. W. Sanders," was built by the Portland Co. in 1876. It had 15x16 cylinders and 48-inch drivers and was gloriously decorated with brass trimming and piping. The builder's number was 347.

This engine served faithfully for 34 years. Frequently it was wrecked. Periodically it jumped the track on some sharp curve and plowed its way into the forest—usually taking the whole train with it. Three different tenders and three different cabs were used during its period of usefulness and at the time of its last trip it was equipped with a converted logging truck to carry its supply of wood fuel.

It came to an inglorious end in 1920 when it jumped the track into the river bed at Sawyer station. Now the boiler rusts away at the end of the spur track near the station but the builder's plate and front number plate are preserved in the rooms of the Railway and Locomotive Historical Society at the Baker Library in Boston.

The next locomotive was the "Peggy", a Baldwin 2-4-2T type, builder's number 7794, built in 1886. This engine was built for the J. E. Henry Lumber Co. at Lincoln, N. H., and was used on the East Branch and Lincoln Railroad. It was later used on the Zealand Valley R. R., another logging road operated by the Henry interests which ran south from the Concord & Montreal R. R. at Twin Mountain. In 1907 it was sold to Blanchard & Twitchell, lumber operators, and used by them probably on the Success Railroad in the vicinity of Berlin, N. H. It was again sold in 1912, this time to the Conway Lumber Co. who in turn sold it in 1920 to the Sawyer River R. R.

This engine had double-flange wheels which were very convenient if the rails at some points along the line were farther apart than customary. It ran until the mill closed and was still in use as recently as 1936.

The rest of the rolling stock consisted of mostly 35 logging trucks with link and pin couplings. These were purchased from the Portland Co. in 1876 and composed the entire equipment until 1885 when two four wheel flat cars were purchased from the same company. Fifteen additional logging trucks were bought from the Maine Central R. R. when the Swift River and East Branch logging operations were abandoned.

The Comet and Catawissa

Two Historic Bury Engines Built for Little Schuylkill R. R.

By George M. Hart

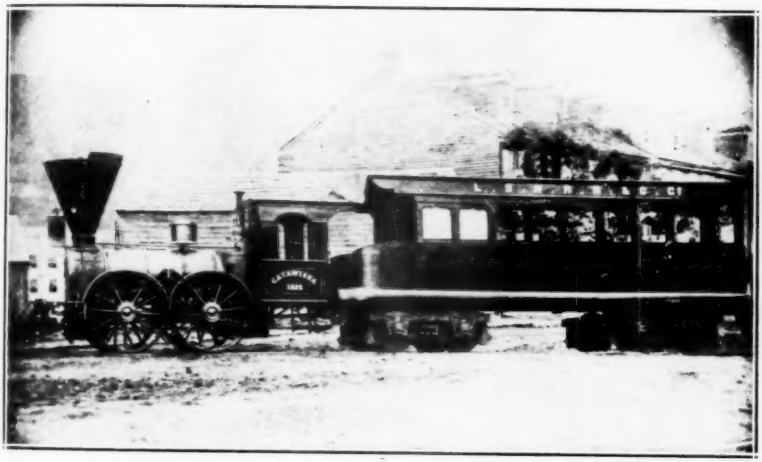
IN 1838 an attempt was made by the United States Treasury Department to compile a complete list of all steam locomotives in the United States. In later years this list has proved invaluable; but, as time passed, a few discrepancies have been noted. One of these, which pertains to the Little Schuylkill R. R., was the omission of the locomotives *Comet* and *Catawissa* from the list.

These engines were ordered from Edward Bury of Liverpool, England, for delivery in 1833. They arrived at Philadelphia early in the same year, and on account of the Schuylkill Canal being frozen, the engines were hauled by team to Port Clinton. When transported, the *Comet* and *Catawissa* were evidently taken off their wheels as an old cash book indicates separate charges for their transportation. These engines were of the 0-4-0 type and weighed a little over eight tons. When acquired, the *Catawissa* was purchased for $5000.

The *Catawissa* was first used on February 27th, 1833 for the making of a trial trip that was not for public inspection. A newspaper correspondent at the time noted the engine leaving Tamaqua at ten o'clock, and returning from Port Clinton in the evening. Of the six railroads in operation in Schuylkill County by the close of 1831, the Little Schuylkill was the first to install steam as a means of motive power.

On March 9, the engines were again placed in service for experimental trips. In the *Miner's Journal*, a weekly published at Pottsville, Pennsylvania, dated March 9, 1833, a general invitation was made to the public for witnessing the trial trips. The *Catawissa* on the second trip, ran off a turnout and piled up the thirteen cars it was hauling, and all were more or less destroyed. Horses were dispatched, and the engine was towed to Tamaqua where repairs could be made. The *Comet* also left the track on its first trip. On March 11th, the *Comet* left Tamaqua without a load for Port Clinton, where it met Thomas Sergeant, Edward Biddle, Moncure Robinson, and some other officials who wanted to be carried to Tamaqua. The return trip from Port Clinton, a distance of twenty-two miles, was made in two and one-half hours. Both engines were placed in regular service on April 9, 1833, but horses still carried about one-third of the tonnage on the road.

Nothing further is known concerning the *Comet* after August, 1833; but the other engine, *Catawissa*, had a long career. When the Little Schuylkill R. R. was leased by the Philadelphia & Reading in April, 1863, this engine became a part of their motive power roster. Subsequently, the P. & R. rebuilt the *Catawissa* into a special inspection car for the use of their officers. It ran for a short time on the Lebanon Valley Branch between Reading and Harrisburg, and apparently was not used after 1865. For the rest of its career, the *Catawissa* was stored at Reading



L. S. N. R. R. & C. Co. "Catawissa" as she appeared between 1859-1862.

until it was scrapped about 1870. This is the approximate date given by the railroad company; however, in the P. & R. Annual Report of 1871, the *Catawissa*, along with another antiquated engine, *Antelope*, is recorded as sold for $4000. It is unfortunate the final location cannot be determined.

From the beginning, these engines attracted the attention of other railroads. For example, in the Philadelphia & Reading Annual Report of 1833, there is a comprehensive running expense record of the *Catawissa*. At this time, the Philadelphia & Reading had only been formed on paper, and the chart was intended to illustrate to the stockholders the advantages of "steam locomotion" in comparison with horses. The record vividly illustrates the operating expenses for the engine and train, and it may be well to reproduce herewith from the above mentioned report.

"Statement showing the cost of Transportation by Locomotive Engine *Catawissa* for ten days up to the 24th of May inclusive, on the Little Schuylkill Rail Road, 20 miles."

20 Cords of wood at 2 dollars	$ 40.00
Pay of engine-man 1 4-6 weeks at 14 dollars	23.33
10 Gallons of oil at $1.12½	11.25
Pay of fireman 1 4-6 weeks at 6 dollars	10.00
Pay of two breaksmen to the train of 16 Waggons, weight about 4 tons each, 1 4-6 weeks at 5.40 dollars	18.00
Breakage equal to an allowance of	7.60
Interest on 5000 dollars. Cost of engine at 6 per cent for eleven days is	9.04
Allowance for repairs of Road	36.64
Daily repair of Engine, say 10 per cent	13.70
	$169.56

"During the above period there were taken to Port Clinton from the Tamaqua Mines 732 Tons, being at the rate of about 23¼ cents per ton."

The writer wishes to acknowledge the services of Mr. J. V. Hare, Secretary, Reading Company, for his assistance in checking available material. In addition, through the cooperation of Mr. G. A. Berner, President, Schuylkill County Historical Society, the writer is indebted for access to newspaper files. Mr. I. L. Gordon, Publicity Manager, Reading Company, has kindly furnished photographs reproduced herein.

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The American Locomotive of the Sixties

THE American locomotive is almost as unique as the American steamboat. It has, of course, many points in common with English engines, but it is, nevertheless, different in design, in finish, and in appearance. It has, invariably, outside cylinders, a handsomely framed and glazed house for the driver, and a great casing around the chimney, formed to catch and retain sparks. These, and a cowcatcher and a bell, give a special exterior to American engines, which is noticed by even the most careless English visitor. But the American engine has other distinctive details, some of which we are adopting on English railways. As now built at Paterson, it has always outside cylinders, slightly inclined, and laid between the truck or bogie wheels, which are spread to a sufficient distance for the purpose. It has four coupled wheels for passengers and either four or six coupled wheels for goods, in addition to the bogie; the springs of the separate pairs of coupled wheels are connected by compensating levers, which have been constantly used by American locomotive engineers since they were employed by Joseph Harrison, the great Russian railway contractor, and the patentee of the Harrison boiler, thirty years ago, or fourteen years before Messrs. Hawthorne patented them here. Joseph Harrison was, indeed, the real designer of the Norris engines, which, about twenty-five years ago, were ordered by the late Captain Moorsom for the then Birmingham and Gloucester line, now a part of the Midland Railway.

The Paterson engines have about the same dimensions of firebox and boiler, in proportion to the cylinders and intended speed of the engine, as prevail in England. Many of their engines burn wood fuel, and these have iron fireboxes, formed of plates seldom more than ¼ in. thick. If 5/16 in. iron be used, it is considered apt to blister, and indeed, it is on account of the tendency of the thicker iron to blistering that the thinner gauges are used. For bituminous coal the firebox is of copper; but for anthracite coal the decrepitation of the fuel, and the consequent chipping action of the flying particles, again compels the use of iron or of steel. The iron tube plates are sometimes as thin as 3/8th in., and they are rarely over ½ in., while copper tube plates, which are not often used, are ⅝ in. thick. The tubes are commonly of copper, occasionally of brass, and for coal burning-engines as often of iron. The boiler iron, we should say, is preferably English iron—say Lowmoor or Bowling—for the internal fireboxes, and the coldblast charcoal Pennsylvania plate for the barrel. There are generally two steam domes to the boiler, and from the arrangement of the regulator, the steam is drawn almost equally from each. The boiler is lagged with thin pine deals, sometimes with a coating of felt, and over the whole is a casing of the thin and beautifully planished Russian iron, in so common use in America, although the mode of making it is unknown there. The steam domes, and often the firebox casing, are covered with planished brass, and the same glittering protection is extended to the cylinders and slide-valve chests, the latter being almost invariably on top of the cylinders.

The cylinders are generally fastened, not only to the frame bars, but to a heavy cast-iron bed-plate or "saddle," which, in its turn, is firmly bolted, not only to the framing, but also to the under side of the smokebox. The fastening of the cylinders involves some little weight, the saddle weighing half a ton, but it is one of the best jobs of the American locomotive, and, with carefully turned bolts and rimed bolt-holes, the cylinders never work loose. One of these cylinder fastenings is shown and described in ENGINEERING for May 11th, last, page 312.

The framing is generally of the truss variety, originally adopted by James Kennedy, whose engineering was always attributed to Edward Bury. The driving axleboxes bear, not against the wrought iron legs of the frame, but against cast-iron wearing pieces with which the axle guards or hornplates are faced. On one side of the axle these wearing pieces are made wedge-shaped, and they have tightening screws to take up the wear.

The compensating levers and the spring loops are hung upon blocks of india-rubber, a detail which has long been regularly adopted in the States.

The driving wheels are of cast iron, and are very often cast with hollow spokes. The bosses are cast whole, but the rim is commonly cut open by a core in casting, so as to accommodate the unequal contraction in cooling. The tyres, if of iron, are generally Bowling or Lowmoor, but Krupp's are now being extensively adopted.

The bogies are now almost universally upon Bissell's plan, as employed upon the Great Eastern, Metropolitan, and other English lines. Mr. Bissell's improvement was originally adopted upon the New Jersey Central Railroad in 1857, and it has since been widely taken up, not only in America, but upon railways in all parts of the world.

Perhaps the most remarkable feature of the American engines is the chilled wheel, generally used for the bogies or trucks of the engine, tender, and carriages. These wheels vary in diameter from 30 in. to 36 in., but 33 in. is the more usual size, and for this size the weight is from 450 to 500 lb. each. These wheels cost, before the war, but 2 pounds 10 shillings to 3 pounds each, ready for the axle. So admirable is the compensation for the internal strain due to unequal cooling, that they may be said to possess a strength not inferior to that of the wheels of first-class English rolling stock. At any rate, they are employed for the leading wheels of heavy express engines, and they run, all through the winter, over roads of which the ballast is frozen for months together to the hardness of a rock. They are of the disc or double-disc form, and the nave is cast whole, or without radial openings, as were once adopted with spoke wheels, the naves in that case being hooped with wrought iron.

The steam pressure is from 120 lb. to 140 lb., and occasionally 180 lb. is carried, notwithstanding that the boilers, of 5/16th in. iron, and single riveted, are rather pressed at this limit. The valve gear is now universally the link motion, working a block on the lower arm of a vibrating rocking-shaft, the valve working horizontally on the top of the cylinder. The valve gear is so adjusted that the piston can take

steam for more than nine-tenths of the length of the stroke, and it can be cut off as short as one-third, or perhaps a little less.

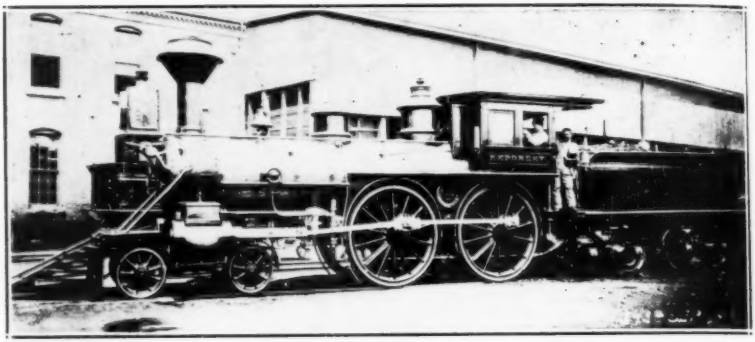
A favourite pattern for goods traffic is the six coupled engine with a two-wheeled or four-wheeled Bissell bogie. This class of engine has about three-fourths of its weight on its coupled wheels, while the bogie leads it easily around curves of 10 chains radius. The extreme wheel base in these engines will be from 19 ft. to 22 ft.

Single pairs of driving wheels have been tried to some extent in the States, but there are not probably half a dozen engines with single drivers now running in the country, almost all having coupled wheels. Wheels of 6 ft. diameter were at one time common for passenger engines, and 7 ft. and even 8 ft. wheels were tried in a few cases. But, at the present time, few, if any, engines are ever made in the States, for any purpose, with wheels larger than 5 ft. 6 in., and, were it worth while, we could give a list of hundreds of engines of which the former larger wheels have been changed for this size. For goods engines, 4½ ft. wheels are in general use.

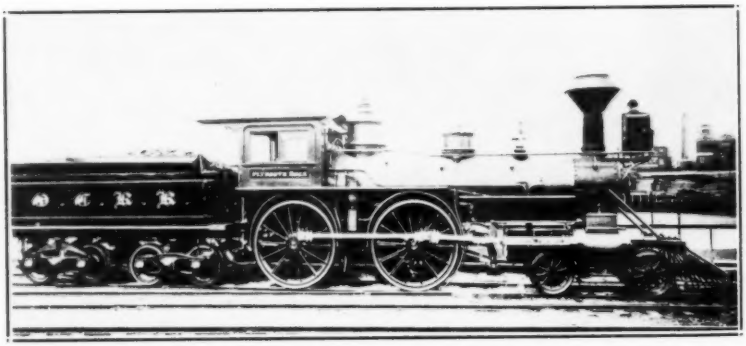
"A Trip to America.—No. IV."
"Engineering," London, June 15, 1866, p. 391.

Submitted by

H. G. Boutell.



O. C. R. R. "Nep nset"—O. C. R. R., 1872



O. C. R. R. "Plymouth Rock"—O. C. R. R., 1878.

Locomotives of the New Haven R. R.

By Chas. E. Fisher

The largest group of locomotives that came into the New Haven System came from the

OLD COLONY RAILROAD

This road, chartered March 16, 1844 to build a railroad from Boston to Plymouth, Mass. was opened for traffic on November 10, 1845. At first the road was simply a local road acquiring or controlling small branch lines that connected with it. On March 25, 1854, it was consolidated with the Fall River R. R. and the name changed to Old Colony & Fall River R. R. Control of the Fall River R. R. brought the road to this city and gave it the opportunity of entering into a rail and water route to New York City, in competition with other roads. This name lasted until August 5, 1863, with the Newport extension, the name was again changed to Old Colony & Newport Ry.

In 1872 the road took its original name—Old Colony R. R. and assumed the task of making its position secure in south-eastern Massachusetts. Some new lines were built to connect the various portions of the road. In 1872 the Cape Cod R. R. was acquired and the Old Colony completed the road into Provincetown. On March 5, 1883, the Boston, Clinton & Fitchburg R. R. was acquired. This road, intended to develop the city of New Bedford as a seaport, ran northerly to Lowell, Fitchburg and Marlboro and intersected the lines running west and north from Boston. It was a most important belt line.

On April 7, 1888, the Boston & Providence R. R. was leased. With the New Haven R. R. stretching eastward and the Shore Line route becoming more important, the Old Colony wisely took over this 44 mile line that connected the two state capitals. Finally, on March 1, 1893, this 617 mile system, together with its steamboat lines on Long Island Sound was leased by the New Haven R. R. Whatever may be said of the present difficulties of the New Haven System or all studies made of its present operations, it is a grave question if the Shore Line, controlled by the New Haven would be of much value to it without the Boston & Providence R. R.

Under the management of men such as Onslow Stearns, John R. Kendrick and J. H. French, to mention a few, the road was one of the best managed roads in New England. In its motive power department, Mr. Bullock started the policy of building locomotives in their own shops in 1865. In 1871, Mr. J. K. Taylor, from the Manchester Locomotive works succeeded Mr. Bullock. Mr. Taylor continued to build locomotives in his own shops and followed pretty much the engines built by Manchester. They were neatly proportioned, handsomely decorated and with their long front ends, presented almost a rakish appearance. In 1884, Mr. Taylor was succeeded by Mr. James N. Lauder. Mr. Lauder, true to his Scotch descent, believed in simplicity. Under his regime names were abolished as well as all the fancy scroll work and decorations.

Even if his locomotives lacked for decorations they did not lack for power and stamina. The ever popular Fall River Line taxed the ingenuity to build an engine of the 4-4-0 type capable of handling this train on its schedule. On August 4, 1887, Mr. Lauder visited the Taunton Locomotive Works and left a memorandum for the construction of a locomotive to haul this train consisting of

13 passenger cars @ 29 tons each	377 tons
2 express cars @ 20 tons each	40 tons
70 passengers per car	56 tons
50 lbs. of baggage per passenger	22 tons
Total	495 tons
Weight of locomotive and tender	80 tons
Total	575 tons

To be hauled by an 18x24" cylinder, 66" drivers, 55000 lbs. on drivers, carrying 170# pressure, locomotive.

The Taunton Works did construct three engines that closely followed these specifications and in the following years many of these locomotives were built by Mr. Lauder.

The late George M. Basford, who was well acquainted with these engines once remarked to me—"For their size, they were superior to anything on our American railroads." Thirty years later, when they were beginning to be scrapped, a New Haven motive power official remarked—"they were the most faithful engines on the road and they never could be replaced!"

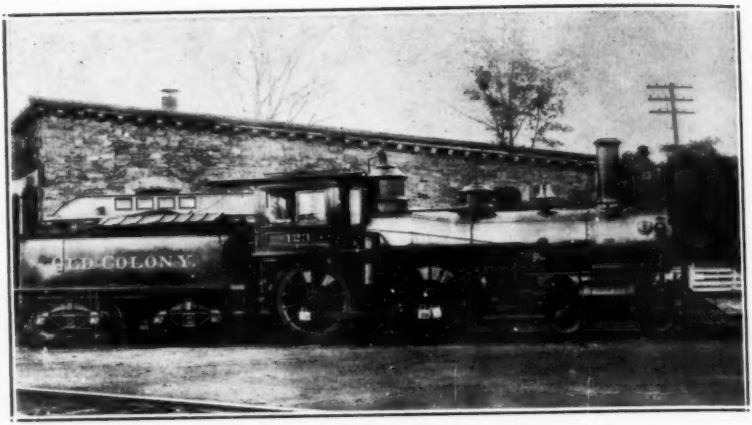
In the roster that is to follow, only the engines owned by the road up to the time of the lease of the Boston & Providence R. R. will be included. The B. & P. locomotives and those that followed will appear in a subsequent bulletin. With the taking over of so many small lines, generally these locomotives were not assigned any group of numbers but were assigned either vacant numbers or the next higher numbers on the O. C. roster. The locomotives from the B. C. & F. were assigned to a group of numbers but not in their own sequence. For sake of brevity, the early roster of 1849 will be omitted as all of the engines on that list will be found herewith:

Comet	R. Stephenson		1834	2-2-0	Purchased from Boston & Worcester R. R.	
Mayflower	Hinkley & Drury	# 47	8- 1-1845	4-2-0	11½x20"	60"
Gov. Carver	Hinkley & Drury	# 51	9-15-1845	4-2-0	11½x20"	60"
John Eliot	Hinkley & Drury	#153	3- 1-1848	4-4-0	14x18"	60"
Abington	Jabez Coney	——	1848	4-4-0	14x18"	60"
Dorchester	S. Wilmarth	——	1849	4-4-4	16x20"	60"
Rebuilt to				4-4-0		

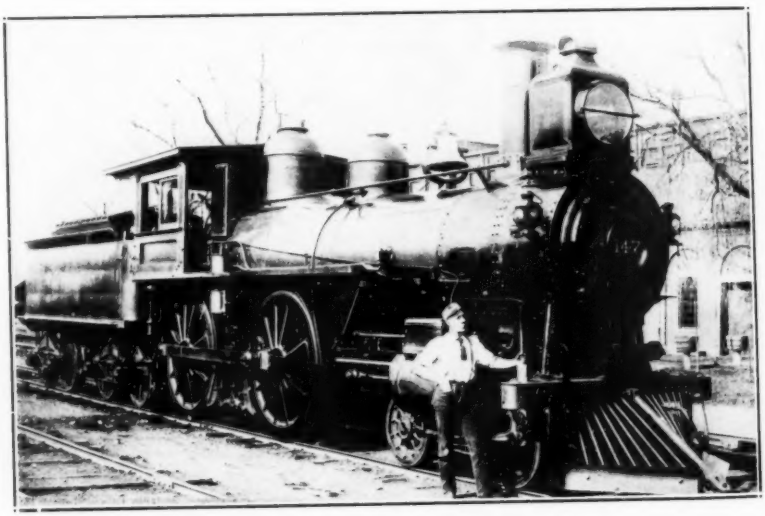
Of the above engines, the "Comet" was sold in 1851; the "Mayflower" was sold to the Northern (N. Y.) R. R. where it took the name "Chazy"; the "Gov. Carver," sold in 1852 and the "John Eliot," sold in 1854, both went to the Bangor, Oldtown & Milford R. R.; the "Abington" was sold to the South Shore R. R. and the "Dorchester" went to the U. S. Military R. R.

1	Miles Standish	Hinkley & Drury	#	54	10-31-1845	4-2-0	11½x20"	60"
1	Merrimac	Hinkley & Drury	#	87	1- 9-1847	4-4-0	15x20"	54"
	(From Concord R. R.)						Renamed	
	Providence—rebuilt by Mason					4-4-0	15x20"	66"
1		Mason	#	715	2- 3-1885	2-4-4	16x24"	54"
601		Scrap—1903						
2	Gov. Bradford	Hinkley & Drury	#	53	10-31-1845	4-2-0	11½x20"	60"
2	Gov. Bradford	O. C. R. R.			1878	0-4-0	14x20"	42"
602		Scrap prior to 1904						
3	Patuxet	Hinkley & Drury	#	65	6-10-1846	4-4-0	13½x20"	60"
3	Metropolis	O. C. R. R.			1880	4-4-0	18x24"	60"
603		Re 1912—Sc 9-20-1905						
4	Kingston	Hinkley & Drury	#	86	12-24-1846	4-4-0	14x18"	60"
	Rebuilt	O. C. R. RR.			5- 1870		Sc—1889	
4	Pemberton	Taunton L. W.	#	269	1860	4-4-0	15x22"	60"
		From Nantasket Beach R. R. #4						
4		Rhode Island	#	2610	1891	0-6-0	18x24"	48"
604		Re 2509—Sc 6-1923						
5	J. Q. Adams	Hinkley & Drury	#	151	2-24-1848	4-4-0	15x20"	60"
5	Shawmut	O. C. R. R.			1872	4-4-0	15x20"	54"
605		Scrap prior to 1903						
605		Rhode Island	#28510		1903	4-4-0	18x24"	69"
6	Weymouth	Jabez Coney	——		1848	4-4-0	14x18"	60"
6		Taunton L. W.	#	912	8-19-1884	0-4-0	16x24"	56"
606		Re 2806—Sc 5-1906						
7	Hingham	Springfield L. W.	——		1848	4-4-0	14x18"	60"
	Gridley Bryant						Renamed	
7		Taunton L W	#	918	2- 1885	0-4-0	16x24"	56"
607		Re 2805—Sc 7-13-1906						
8	Mayflower	John Souther	——		1849	4-4-0	14½x20"	60"
8	Mayflower	O. C. R. R.			9- 1870	4-4-0	14x22"	66"
608		Scrap—1903						
608		Rhode Island	#28511		1903	4-4-0	18x24"	69"
		Re 1526—Sc 9-30-1927						
9	Tornado	Seth Wilmarth	——		1849	4-4-4	16x20"	60"
							Renamed	
	Plymouth	Rebuilt				4-4-0		
9	Plymouth Rock	O. C. R. R.			1878	4-4-0	17x24"	66"
609	Rebuilt	S. Boston Shops			1898	4-4-0	17x24"	69"
		Re 1816—Sc—9-29-1919						
10	Pilgrim	Amoskeag	#	139	12-29-1853	4-4-0	15x20"	66"
10	Pilgrim	O. C. R. R.			1883	4-4-0	18x24"	66"
610	Rebuilt	S. Boston Shops			1898	4-4-0	17x24"	69"
		Re 1817—Sc—8-18-1919						
11	Richard Borden	Hinkley & Drury	#	434	3-26-1853	4-4-0	16x20"	66"
		From Fall River R. R.						
11		Mason	#	713	6-11-1884	4-4-0	17x24"	63"
611		Re 1911—Sc 2-8-1914						
12	Metropolis	Hinkley & Drury	#	514	5- 1-1854	4-4-0	15x20"	66"
		From Fall River R. R.						
12	Gen. Warren	O. C. R. R.			1876	4-4-0	15x22"	66"
612		Scrap prior to 1903						
612		Rhode Island	#28512		1903	4-4-0	18x24"	69"
		Re 1527—Sc 9-30-1929						
13	Braintree	Hinkley & Drury	#	89	1-21-1847	4-4-0	15x20"	54"
		From Fall River R. R.						
13	Brant Rock	Portland	#	172	10-14-1869	4-4-0	12x18"	54"
		Hanover Branch R. R. #1						
13		Rhode Island	#1611		1891	0-6-0	18x24"	48"
613		Re 2510—Sc 6-1923						
14	Middleborough	Taunton L W	#	67	4- 7-1851	4-4-0	15x20"	66"
		From Fall River R. R.						

14	Spark	Taunton L W	# 515	11-11-1870	4-4-0	14x22"	60"
		Hanover Branch R. R. #2					
14		Rhode Island	# 2713	1892	0-6-0	18x24"	48"
614		Re 2505—Sc 6-1923					
15	Newport	Hinkley & Drury	# 175	5-31-1848	4-4-0	16x20"	54"
		From Fall River R. R.					
15	Newport	O. C. R. R.		1883	4-4-0	18x24"	66"
615		Re 1763—Sc 10-1913					
16	Randolph	Hinkley & Drury	# 66	7- 2-1846	4-4-0	14x18"	66"
		From Fall River R. R.					
16	Ashmont	Taunton L W	# 632	10-31-1873	4-4-0	14x24"	60"
		From B. C. & F. R. R. "W. J. Rotch" #38					
616		Scrap prior to 1904					
17	Bay State	Hinkley & Drury	# 132	11-20-1847	4-4-0	14x18"	60"
		From Fall River R. R.					
17	Bay State	Mason	# 169	8- 1-1864	4-4-0	15x22"	60"
		From B. C. & F. R. R. "T. B. Wales" #33					
617		Rhode Island	#28513	1903	4-4-0	18x24"	69"
		Re 1528—Sc 12-1935					
18	Quincy	Hinkley & Drury	# 61	4- 8-1846	4-2-0	12x20"	72"
18	Abington	Jabez Coney	——	1848	4-4-0	14x18"	60"
		Sold to South Shore R. R.					
18	Quincy	Manchester	# 78	3-27-1866	4-4-0	14x22"	60"
		From South Shore R. R.—"T. Henry Perkins"					
618		Scrap—prior to 1899					
618		South Boston Shops		1899	4-4-0	18x24"	69"
		Re 1591—Sc 12-29-1926					
19	Campello	Hinkley & Drury	# 77	9-26-1846	4-4-0	14x18"	66"
		From Fall River R. R.—"Bridgewater"					
19		Mason	# 721	6-11-1885	2-4-6	16x24"	54"
619		Re 2101—Sold—Southern I & E Co. 1905					
20	New York	Matfield Mfg. Co.	——	1856	4-4-0	15x20"	66"
	Rebuilt	O. C. R. R.		6- 1871	4-4-0	14x22"	60"
620		Scrap—prior to 1898					
620		South Boston Shop		1898	4-4-0	16x24"	63"
		Re 2018—Sc 12-31-1915					
21	Boston	Hinkley & Drury	# 92	2-11-1847	4-4-0	14x18"	66"
		From Fall River R. R.—Sold to B. O. & M. R. R.					
21	South Boston	Matfield Mfg. Co.	——	1856	4-4-0	15x20"	66"
21	Agawam	O. C. R. R.		1874	0-4-0	14x20"	42"
21		Rhode Island	# 2979	1893	0-6-0	18x24"	48"
621		Re 2500—Sold—T. Stewart & Son—1918.					
22	Walker	Lawrence M. S.	——	1859	4-4-0	15x22"	54"
622	Rebuilt	O. C. R. R.		10- 1870			
622		Rhode Island	#28514	1903	4-4-0	18x24"	69"
		Re 1529—Sc 2-29-1928					
23	Hudson	Lawrence M. S.	——	1859	4-4-0	14x22"	66"
	Rebuilt	O. C. R. R.		——			
23		Rhode Island	# 2612	1891	0-6-0	18x24"	48"
623		Re 2511—Sc 6-1923					
24	Speedwell	Lawrence M. S.	——	1859	4-4-0	15x22"	54"
		Sold—U. S. Military R. R.					
24	H. C. Brooks	Rhode Island	# 526	1873	0-4-0	14x24"	48"
							Renamed
624	Union	Re 2909—Sc 3-15-1906					
25	Extension	Mason	# 127	3- 6-1863	4-4-0	15x24"	60"
625		Scrap—prior to 1903					
625		Rhode Island	#28515	1903	4-4-0	18x24"	69"
		Re 1530—Sc 12-29-1926					
26	Puritan	Manchester	# 53	2- 1-1865	4-4-0	16x22"	60"
626		South Boston Shop		1900	4-4-0	18x24"	69"
		Re 1587—Sc 9-30-1927					



O. C. R. R. #123—O. C. R. R. 1884.



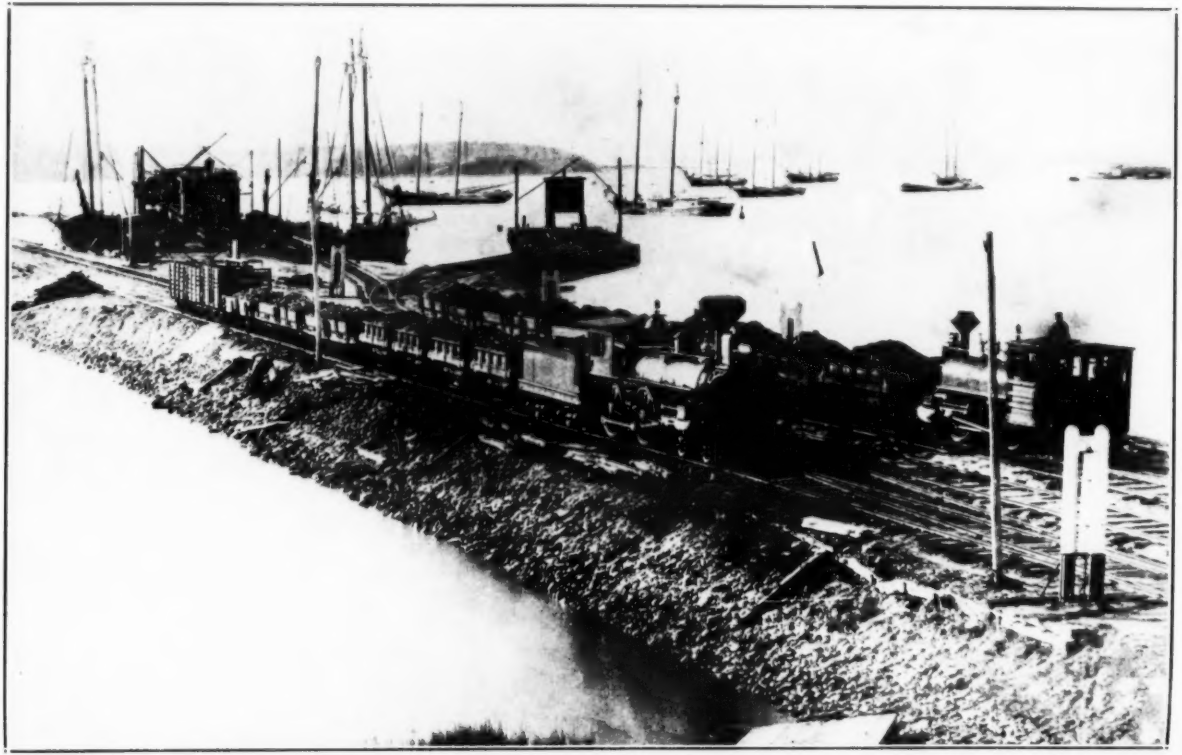
O. C. R. R. #147—O. C. R. R. 1889.

27	Electric	Manchester	#	61	3-31-1865	4-4-0	16x22"	66"
627		South Boston Shops			1899	4-4-0	18x24"	69"
		Re 1592—Sc 12-1935						
28	Monitor	O. C. R. R.	#	1	4- 1865	0-4-0	12x20"	45"
628		Rhode Island	#28516		1903	4-4-0	18x24"	69"
		Re 1531—Sc 12-1935						
29	Empire	Manchester	#	71	12-15-1865	4-4-0	16x24"	66"
629		Rhode Island	#28517		1903	4-4-0	18x24"	69"
		Re 1532—Sc 10-31-1929						
30	Taunton	Taunton L W	#	372	11- 1865	4-4-0	16x24"	60"
	Rebuilt	O. C. R. R.			1887			
630		Re 2025—Sc 4-4-1914						
31	King Philip	Manchester	#	79	5-31-1866	4-4-0	16x24"	66"
	Rebuilt	O. C. R. R.			1887			
631		South Boston Shop			1901	4-4-0	18x24"	69"
		Re 1583—Sc 9-30-1927						
32	Dighton	Taunton L W	#	389	6-27-1866	4-4-0	15x22"	60"
		Sold—Cleveland & Canton R. R.—1888						
32		Taunton L W	#	980	1889	0-6-0	17x24"	48"
632		Re 2701—Sc. 8-20-1914						
33	Fall River	Taunton L W	#	399	1-17-1867	4-4-0	16x24"	60"
	Rebuilt	O. C. R. R.			1888			
633		Re 2024—Sc 7-1-1909						
34	Active	Taunton L W	#	423	1- 6-1868	0-4-0	10x22"	42"
		Sold—Atlantic Dredging Co.			1880			
34	Active	Manchester	#	797	1880	0-4-0	15x22"	48"
		Scrap prior to 1904						
35	St. James	Taunton L W	#	421	12-30-1867	4-4-0	16x22"	60"
		Sold—Long Island R. R.			1888			
35		Taunton L W	#	979	1889	0-6-0	17x24"	48"
635		Re 2702—Sc 2-8-1914						
36	Somerset	Taunton L W	#	465	5-31-1869	4-4-0	16x24"	66"
636		South Boston Shop			1901	4-4-0	18x24"	69"
		Re 1584—Sc 2-29-1928						
37	Old Colony	Rhode Island	#	115	1869	4-4-0	16½x24"	66"
637		South Boston Shop			1901	4-4-0	18x24"	69"
		Re 1585—Sc 2-29-1928						
38	Narragansett	Taunton L W	#	468	7-27-1869	4-4-0	16½x24"	60"
638		South Boston Shop			1899	4-4-0	18x24"	69"
		Re 1593—Sc 11-30-1927						
39	Magnet	Taunton L W	#	523	2- 8-1871	0-4-0	10x22"	42"
639		Schenectady	——		1898	0-6-0	18x24"	45"
		Re 2537—Sc 6-30-1926						
40	Atlantic	O. C. R. R.			1872	4-4-0	15x22"	66"
640		Scrap—prior to 1904						
41	Neponset	O. C. R. R.			1872	4-4-0	15x22"	66"
641		Re 1950—Sc 4-25-1906					17x22"	
42	South Shore	J. Souther			3- 1854	4-4-0	14x20"	66"
		From South Shore R. R.						
42		Taunton L W	#	914	12-16-1884	4-4-0	17x24"	63"
642		Re 1889—Sold to Wood River R. R. 1919						
43	Cohasset	J. Souther	——		1854	4-4-0	14x20"	60"
		From South Shore R. R.						
43		Rhode Island	#2932		1893	0-6-0	18x24"	48"
643		Re 2501—Sc 1-1925						
44	Abington	Jabez Coney	——		1848	4-4-0	14x18"	60"
		From South Shore R. R.						
44	Abington	Hinkley & Drury	#	522	6- 6-1854	4-4-0	14x20"	60"
		From Fairhaven Br. R. R.—"W. L. B. Gibbs"						
44	Mason	Mason	#	728	6- 3-1886	4-4-0	18x26"	60"
644		Re 1630—Sc 7-31-1925						

45	Spark	Taunton L W	#	515	11-11-1870	4-4-0	14x22"	60"
		Sold—Hanover Br. R. R. "Spark" #3						
45	Jacob H. Loud	O. C. R. R.			1882	4-4-0	18x26"	60"
645		Re 1741—Sc 12-31-1915						
46	Brockton	O. C. R. R.			1872	4-4-0	16x24"	60"
646		Re 2040—Sc 1-1905. Originally—"North Bridgewater."						
47	Boston	O. C. R. R.			1871	4-4-0	15x22"	66"
647		Rhode Island	#28518		1903	4-4-0	18x24"	69"
		Re 1533—Sc 12-1935						
48	Nauset	Hinkley & Drury	#	214	11-25-1848	4-4-0	12½x20"	60"
		From Cape Cod R. R.—"Barnstable"						
48	E. N. Winslow	O. C. R. R.			1881	4-4-0	18x24"	60"
648		Re 2030—Sc 8-21-1914						
49	Cape Cod	Hinkley & Drury	#	165	4-27-1848	4-4-0	16x20"	54"
		From Cape Cod R. R.						
49	Hanover	Taunton L W	#	636	2-20-1874	4-4-0	15x22"	60"
		From Hanover Br. R. R. #2						
49		Rhode Island	#	2933	1893	0-6-0	18x24"	48"
649		Re 2502 Sc 6-1923						
50	Webster	Matfield Mfg. Co.			5- 1857	4-4-0	15x20"	66"
		From Cape Cod R. R.						
50	Daniel Webster	O. C. R. R.			1880	4-4-0	18x24"	60"
650	Rebuilt	South Boston Shop			1898	4-4-0	17x24"	69"
		Re 1818—Sc 8-18-1919						
51	Wareham	Hinkley & Drury	#	126	10- 8-1847	4-4-0	14x18"	60"
		From Cape Cod R. R.						
51	John A. Andrew	O. C. R. R.			1880	4-4-0	18x24"	66"
651		Re 1913—Sc 12-31-1915						
52	Sandwich	Hinkley & Drury	#	136	12- 4-1847	4-4-0	14x18"	60"
		From Cape Cod R. R.						
52	Sandwich	O. C. R. R.			1883	4-4-0	18x26"	60"
652	Rebuilt	South Boston Shop			1898			
		Re 1711—Sc 1-20-1919						
53	Nantucket	Hinkley & Drury	#	513	4-26-1854	4-4-0	15x20"	66"
		From Cape Cod R. R.						
53	Oliver Ames	O. C. R. R.			1877	4-4-0	17x22"	66"
653		Re 1908—Sc 7-1-1907						
54	Burgess	Lawrence M. S.			1854	4-4-0	14x22"	60"
		From Cape Cod R. R.						
	Rebuilt	O. C. R. R.			11- -1873			
654		South Boston Shop			1898	4-4-0	18x24"	69"
		Re 1599—Sc 12-1935						
55	Highland Light	Mason	#	273	11-14-1867	4-4-0	14x22"	60"
		From Cape Cod R. R.						
	Rebuilt	O. C. R. R.			1883	4-4-0	17x22"	66"
655		Re 1906—Sc 4-4-1914						
56	Right Arm	Hinkley & Wms	——		5- 1871	4-4-0	15x22"	54"
		From Cape Cod R. R.						
56		Hinkley	#	1810	1889	2-6-0	19x24"	54"
656		Re 635—Sc 6-10-1905						
57	Bounty	Rogers	——		?	4-4-0	13½x20"	60"
		From Cape Cod R. R.						
57	Gov. Sterns	O. C. R. R.			1879	4-4-0	16x24"	60"
657		Re 2012—Sc 9-20-1905						
58	Stoughton	Taunton L W	#	482	12- 1869	0-4-0	12x22"	48"
		From Stoughton Br. R. R.—"F. W. Lincoln"						
58		Rhode Island	#	2712	1892	0-6-0	18x24"	48"
658		Re 2506—Sc 6-1923						
59	Victor	O. C. R. R.			8- 1873	0-4-0	14x20"	42"
659		Scrap prior to 1898						
659		Schenectady	——		1898	0-6-0	18x24"	45"
		Re 2538—Sc 12-29-1926						

60	Bristol	O. C. R. R.			6-	1873	4-4-0	16x24"	66"
660		Re 2009—Sc 3-17-1908							
61	Mt. Hope	O. C. R. R.			6-	1873	4-4-0	16x24"	60"
661		Re 2010—Sc 11-24-1908							
62	Miles Standish	Manchester	#	543	3-	1873	4-4-0	16x24"	66"
662		Scrap—prior to 1901							
662		South Boston Shop				1901	4-4-0	18x24"	69"
		Re 1586—Sc 12-1935							
63	John Q. Adams	Manchester	#	544	3-	1873	4-4-0	16x24"	60"
663		South Boston Shop				1894	2-6-0	19x24"	57"
		Re 600—Sc 6-30-1926							
64	Royal Turner	O. C. R. R.			6-	1874	4-4-0	16x24"	66"
664	Rebuilt	South Boston Shop				1898	4-4-0	16x24"	69"
		Re 2001—Sc 12-31-1915							
65	Pocasset	O. C. R. R.			12-	1874	4-4-0	16x24"	60"
665		Re 2035—Sc 10-18-1904							
66	Mercury	Taunton L W	#	224	4-	1857	4-4-0	13x20"	60"
		From Middleboro & Taunton R. R.							
66		Mason	#	729	6-14-	1886	4-4-0	18x26"	60"
666		Re 1631—Sc 7-31-1925							
67	Centennial	O C. R. R.			1-	1876	4-4-0	15x22"	60"
667		Rhode Island	#28519			1903	4-4-0	18x24"	69"
		Re 1534—Sc 12-1935							
68	Falmouth	O. C. R. R.			5-	1876	4-4-0	16x24"	66"
668		Re 2008—Sc 12-23-1907							
69	Easton	Baldwin			3-	1876	4-4-0	15x24"	60"
669		Rhode Island	#28520			1903	4-4-0	18x24"	69"
		Re 1535—Sc 5-31-1928							
70	Northern	Baldwin	#	2901	10-	1875	4-4-0	15x24"	60"
670	Rebuilt	South Boston Shop				1898	4-4-0	15x24"	63"
		Re 2019—Sc 11-8-1918							
71	Pacific	Baldwin	——		1-	1876	4-4-0	15x24"	60"
671		Rhode Island	#28521			1903	4-4-0	18x24"	69"
		Re 1536—Sc 5-31-1928							
72	Milton	Baldwin	——		3-	1876	4-4-0	15x24"	60"
672		Rhode Island	#28522			1903	4-4-0	18x24"	69"
		Re 1537—Sc 12-1935							
73	Leominster	Hinkley & Drury	——			1849	4-4-0	16x20"	54"
		From B. C. & F. #3							
73		Taunton L W	#	915	1-19-	1885	4-4-0	17x24"	66"
673		Re 1882—Sc 10-4-1910							
74	Rollstone	Hinkley & Drury	#	283	11-	4-1850	4-4-0	15x18"	60"
		From B. C. & F.	#1—Sold—Taunton L. W.						
74	Rollstone	Taunton L W	#	734	4-30-	1880	4-4-0	16x22"	54"
674		Rhode Island	#28523			1903	4-4-0	18x24"	69"
		Re 1538—Sc 12-1935							
75	Washacum	Hinkley & Drury	——			1850	4-4-0	16x18"	60"
		From B. C. & F. #2—Sold—Taunton L W							
75	Washacum	Taunton L W	#	730	3-29-	1880	4-4-0	18x26"	60"
675	Rebuilt	South Boston Shop				1897	4-4-0	18x26"	63"
		Re 1713—Sc 11-20-1919							
76	G. E. Towne	Hinkley L W	——		12-	1869	4-4-0	15x22"	60"
		From B. C. & F. #15							
76	Allerton	Hinkley & Wms	——			1871	4-4-0	15x22"	60"
		From Nantasket Beach R. R. #3							
676		Rhode Island	#28524			1903	4-4-0	18x24"	69"
		Re 1539—Sc 11-30-1927							
77	E. A. Harris	Hinkley L W	——			1871	4-4-0	16x24"	60"
		From B. C. & F #18							
677		Rhode Island	#28525			1903	4-4-0	18x24"	69"
		Re 1540—Sc 12-29-1926							

78	F. B. Fay	Hinkley L W	——		1872	4-4-0	16x24" 60"
		From B. C. & F. #21					
678		Roxbury Shop			1899	4-4-0	18x24" 69"
		Re 1594—Sc 12-1935					
79	Lowell	Hinkley L W	——		1872	0-4-0	15x22" 48"
		From B. C. & F. #19					
679		Scrap—1904					
80	Marlboro	Hinkley L W	——		1872	4-4-0	15x22" 60"
		From B. C. & F. #7					
680		Rhode Island	#28526		1903	4-4-0	18x24" 69"
		Re 1541—Sc 2-29-1928					
81	W. D. Peck	Hinkley L W	——		1873	0-4-0	14x22" 54"
		From B. C. & F. #22					
681		Rhode Island	#28527		1903	4-4-0	18x24" 69"
		Re 1542—Sc 10-31-1929					
82	Cyrus Gale	Hinkley L W	——		1875	4-4-0	17x24" 60"
682		Rhode Island	#28528		1903	4-4-0	18x24" 69"
		Re 1543—Sc 10-1927					
83	Saturn	Taunton Br. R. R.			1861	4-4-0	15x20" 66"
		From B. C. & F. #27					
83	A. E. Swazey	O. C. R. R.			1881	4-4-0	17½x22" 66"
683		Re 1907—Sc 2-20-1906					
84	Jupiter	Taunton L W	# 196	9-25-1855	4-4-0	14x20" 66"	
		From B. C. & F. #32					
84	Walpole	Taunton L W	# 772	2-21-1881	4-4-0	18x26" 60"	
684	Rebuilt	South Boston Shop			1897	4-4-0	18x26" 63"
		Re 1712—Sc 8-18-1919					
85	Sterling	Taunton L W	# 384	5-21-1866	4-4-0	16x22" 60"	
		From B. C. & F. #4					
685		Rhode Island	#28529		1903	4-4-0	18x24" 69"
		Re 1544—Sc 2-29-1928					
86	Clinton	Taunton L W	# 385	5-30-1866	4-4-0	16x22" 60"	
		From B. C. & F. #5					
686		Rhode Island	#28530		1903	4-4-0	18x24" 69"
		Re 1545—Sc 10-31-1929					
87	Northboro	Taunton L W	# 397	12- 6-1866	4-4-0	14x26" 60"	
		From B. C. & F. #6—Sold—Sebasticook & Moosehead R. R.					
87	Rockland	Mason	# 96	5- 8-1860	4-4-0	15x22" 60"	
		From Nantasket Beach R. R. #5					
87		O. C. R. R.			1893	2-6-0	19x24" 56"
687		Re 611—Sc 1-1-1923					
88	E. Baylies	Taunton L W	# 398	12-31-1866	4-4-0	15x22" 60"	
		From B. C. & F. #34—Sold—Cleveland & Canton R. R.					
88		O. C. R. R.			1889	4-4-0	16x24" 60"
688		Re 2003—Sc 2-8-1914					
89	Jos. Grinnell	Taunton L W	# 409	6-20-1867	4-4-0	16x22" 60"	
		From B. C. & F. #28					
89		O. C. R. R.			1893	2-6-0	19x24" 56"
689		Re 612—Sc 1-31-1922					
90	Fitchburg	Taunton L W	# 413	8- 1-1867	4-4-0	16x22" 60"	
		From B. C. & F. #8—Sold—Cleveland & Canton R. R.					
90		Hinkley L W	# 1811		1889	2-6-0	19x24" 54"
690		Re 636—Sc 2-28-1925					
91	Berlin	B. C. & F.			1869	4-4-0	16x22" 60"
		From B. C. & F. #9					
	Rebuilt	O. C. R. R.			1880	4-4-0	17x22" 60"
691	Rebuilt	Taunton Shops			1898		
		Re 2020—Sc 9-29-1919					
92	N. Thayer	Taunton L W	# 484	12-20-1869	4-4-0	16x22" 60"	
		From B. C. & F. #11—Sold—Cleveland & Canton R. R.					
92		Hinkley L W	# 1807		1889	2-6-0	19x24" 54"
692		Re 637—Sc 2-28-1925					



A busy scene at Somerset, Mass. coal docks.

93	G. A. Torrey	Taunton L. W	#	493	4- 4-1870	4-4-0	16x24"	54"
		From B. C. & F. #12						
693		Scrap prior to 1904						
94	H. A. Blood	Taunton L. W	#	519	12-22-1870	4-4-0	16x22"	54"
		From B. C. & F. #14—Sold—Cleveland & Canton R. R.						
94		Hinkley L. W	#	1806	1889	2-6-0	19x24"	54"
694		Re 638—Sc 2-28-1925						
95	W. A. Crocker	Taunton L. W	#	535	8- 5-1871	4-4-0	16x24"	60"
		From B. C. & F. #36						
695		Scrap prior to 1904						
96	H. N. Bigelow	Taunton L. W	#	585	10-11-1872	4-4-0	16x24"	54"
		From B. C. & F. #20						
696		Roxbury Shop			1903	4-4-0	18x24"	69"
		Re 1579—Sc 10-31-1929						
97	Acushnet	Taunton L. W	#	671	4- 7-1876	0-4-0	15x22"	48"
697		Scrap prior to 1904						
98	L. Nichols	Rhode Island	#	149	1869	4-4-0	15x22"	60"
		From B. C. & F. #10						
698		Scrap prior to 1904						
99	New Bedford	Rhode Island	#	150	1869	4-4-0	16x22"	60"
		From B. C. & F. #29						
699		Scrap prior to 1904						
100	Foxboro	Rhode Island	#	231	1870	4-4-0	16x22"	66"
		From B. C. & F. #13						
700		Roxbury Shop			1903	4-4-0	18x24"	69"
		Re 1575—Sc 10-25-1909						
101	Thos. Mandell	Rhode Island	#	250	1870	4-4-0	16x24"	60"
		From B. C. & F. #30						
701		Scrap prior to 1904						
102	Ward M. Parker	Rhode Island	#	420	1872	4-4-0	16x22"	60"
		From B. C. & F. #31						
702		Re 2036—Sc 2-1905						
103	Chas. L. Wood	Rhode Island	#	385	1872	4-4-0	16x22"	66"
		From B. C. & F. #39						
703		Rhode Island	#28531		1903	4-4-0	18x24"	69"
		Re 1546—Sc 5-15-1928						
104	Chas. Richmond	Mason	#	370	8-27-1870	4-4-0	16x24"	60"
		From B. C. & F. #35						
704		Rhode Island	#28532		1903	4-4-0	18x24"	69"
		Re 1547—Sc 8-18-1919						
105	S. H. Howe	Mason	#	419	8-14-1871	4-4-0	16x24"	60"
		From B. C. & F. #16						
705		Roxbury Shop			1899	4-4-0	18x24"	69"
		Re 1595—Sc 9-30-1927						
106	E. P. Carpenter	Mason	#	424	9- 6-1871	4-4-0	16x24"	60"
		From B. C. & F. #17						
706		Scrap prior to 1904						
107	W. B. Sproat	Mason	#	468	8-18-1872	0-4-0	14x22"	48"
		From B. C. & F. #37						
707		Rhode Island	#28533		1903	4-4-0	18x24"	69"
		Re 1548—Sc 2-1917						
108	Wm. Mason	Mason	#	536	9- 5-1874	0-6-6	16x24"	42"
		From B. C. & F. #23						
108		Taunton L. W.	#	911	6-10-1884	4-4-0	17x24"	63"
708	Rebuilt	Taunton Shop			1899	4-4-0		
		Re 1888—Sc 8-18-1919						
109	S. A. Webber	Mason	#	553	11- 8-1875	4-4-0	16x24"	60"
		From B. C. & F. #25						
709		Re 2039—Sc 1-1905						
110	Dorchester	O. C. R. R.			8-	1881	4-4-0	18x24" 66"
710		Re 1658—Sc 9-1-1923						

A busy scene at Somerset, Mass. coal docks.

111	Speedwell	O. C. R. R.			1-	1882	4-4-0	17x24"	66"
711		Re 1909—Sc 1-20-1919							
112	Randolph	O. C. R. R.			5-	1882	4-4-0	18x26"	60"
712		Re 1742—Sc 7-1-1911							
113	Bridgewater	O. C. R. R.			6-	1882	4-4-0	18x26"	60"
713		Re 1743—Sc 4-30-1915							
114	Anawan	O. C. R. R.			11-	1882	0-4-0	15x22"	48"
714		Re 2905—Sc 7-23-1907							
115	Massasoit	O. C. R. R.			2-	1883	0-4-0	15x22"	48"
715		Re 2904—Sc 1-1905							
116	Medfield	Taunton L W	#	831	1-30-	1882	4-4-0	18x26"	60"
716	Rebuilt	Roxbury Shop				1900	4-4-0		
		Re 1710—Sc 1-20-1919							
117	Sherborn	Taunton L W	#	832	2- 3-	1882	4-4-0	18x26"	60"
717		Re 1715—Sc 5-25-1905							
118	Norton	Taunton L W	#	873	11-13-	1882	4-4-0	18x26"	60"
718	Rebuilt	Roxbury Shop				1897			
		Re 1714—Sc 11-20-1919							
119	Framingham	Taunton L W	#	877	1- 9-	1883	0-4-0	16x24"	54"
719		Re 2807—Sc 9-15-1906							
120	Suffolk	Hinkley LW	#	1569	6-	1883	4-4-0	17x24"	66"
720	Rebuilt	South Boston Shop				1898	4-4-0		
		Re 1819—Sc 11-8-1918							
121	Norfolk	Hinkley L W	#	1570	6-	1883	4-4-0	17x24"	60"
721		Re 1897—Sc 12-31-1915							
122		O. C. R. R.			4-	1884	4-4-0	18x24"	72"
722		Re 1762—Sc 4-1915							
123		O. C. R. R.			11-	1884	4-4-0	16x24"	60"
723		Re 2029—Sc 4-18-1906							
124		O. C. R. R.			1-	1885	4-4-0	16x24"	60"
724		Re 2026—Sc 9-26-1905							
125		Taunton L W	#	909	1-23-	1884	4-4-0	18x24"	60"
725		Re 1725—Sc 8-18-1919							
126		Taunton L W	#	910	7-21-	1884	4-4-0	18x24"	60"
726		Re 1726—Sc 8-18-1919							
127		O. C. R. R.			7-	1885	4-4-0	17x24"	63"
727		Re 1883—Sc 2-1917							
128		O. C. R. R.				1885	4-4-0	17x24"	63"
728		Re 1884—Sc 12-31-1915							
129		O. C. R. R.				1886	4-4-0	17x24"	63"
729		Re 1881—Sc 2-1917							
130		Taunton L W	#	917	3- 3-	1885	4-4-0	18x26"	60"
730		Re 1739—Sc 4-30-1915							
131		Taunton L W	#	921	4-13-	1885	4-4-0	18x26"	60"
731		Re 1740—Sc 4-30-1915							
132		O. C. R. R.				1886	4-4-0	18x24"	66"
732		Re 1700—Sc 6-15-1917							
133		O. C. R. R.				1886	4-4-0	18x24"	66"
733		Re 1701—Sc 6-1923							
134		Taunton L W	#	927	5-26-	1886	4-4-0	18x26"	60"
734		Re 1737—Sc 12-31-1915							
135		Taunton L W	#	928	6-28-	1886	4-4-0	18x26"	60"
735		Re 1738—Sc 7-29-1914							
136		O. C. R. R.				1887	4-4-0	18x24"	66"
736		Re 1698—Sc 6-1-1923							
137		O. C. R. R.				1887	4-4-0	18x24"	66"
737		Re 1699—Sc 2-1917							
138		O. C. R. R.				1887	4-4-0	17x24"	66"
738		Re 1838—Sc 1-20-1919							
139		O. C. R. R.				1888	4-4-0	17x24"	66"
739		Re 1836—Sc 12-31-1915							
140		O. C. R. R.				1888	4-4-0	17x24"	66"

740			Re 1837—Sc 12-31-1915					
141			Taunton L W	#	932	4-25-1887	4-4-0	17x24" 60"
741			Re 1891—Sc 2-1917					
142			Taunton L W	#	929	2-28-1887	4-4-0	17x24" 60"
742			Re 1892—Sc 2-28-1917					
143			Taunton L W	#	939	6- 6-1887	0-6-0	17x24" 48"
743			Re 2703—Sc 10-2-1906					
144			Taunton L W	#	940	6-15-1887	0-6-0	17x24" 48"
744			Re 2704—Sc 10-24-1913					
145			O. C. R. R.			1889	4-4-0	18x24" 66"
745			Re 1688—Sc 1-1-1923					
146			O. C. R. R.			1889	4-4-0	18x24" 66"
746			Re 1689—Sc 1-31-1922					
147			O. C. R. R.			1889	4-4-0	18x24" 66"
747			Re 1690—Sc 6-1-1923					
148			O. C. R. R.			1889	4-4-0	18x24" 66"
748			Re 1691—Sc 1-20-1919					
149			Taunton L W	#	976	8-31-1888	4-4-0	18x24" 66"
749			Re 1693—Sc 1-31-1922					
150			Taunton L W	#	977	8-15-1888	4-4-0	18x24" 66"
750			Re 1694—Sc 6-28-1920					
151			Taunton L W	#	978	8-25-1888	4-4-0	18x24" 66"
751			Re 1695—Sc 6-1-1923					
152			O. C. R. R.			1889	4-4-0	18x24" 66"
752			Re 1692—Sc 1-31-1922					
153	Grover	Cleveland	Mason	#	723	6-30-1885	2-4-4	14x18" 48"
			From Nantasket Beach R. R. #6					
753			Re 2103—Sold—Norcross Bros. Stony Creek, 2-1905					

The engines that were assigned the above numbers in the new series of 1904 were engines carrying former numbers and grouped according to their dimensions. They were as follows:

- 600	M-1	South Boston Shop	1894	19x24" 63" 115000 Ex #663
601-602	M-1	O. C. R. R.	1892	19x24" 63" 115000 Ex #770, 785
603-604		Vacant		
605-606	M-1	Rogers	1892	19x24" 58" 118000 Ex 1084-1085
607-609		Vacant		
610-616	M-3	O. C. R. R.	1890-93	19x24" 57" 115000 Ex 823, 687, 689, 798, 771, 782, 780
617-619		Vacant		
620-625	M-4	Cooke	1890	19x24" 58" 113000 Ex 1060-1065
626-629		Vacant		
630-631	M-5	Rhode Island	1892	19x24" 57" 108000 Ex 69, 189
632-633	M-5	New Haven Shop	1888	19x24" 57" 108000 Ex 27, 143
- 634		Vacant		
635-638	M-6	Hinkley	1889	19x24" 57" 108000 Ex 656, 690, 692, 694
- 639		Vacant		
640-642	M-7	Rhode Island	1889	19x24" 54" 104000 Ex 985-986, 1020
643-644		Vacant		
645-648	M-8	New Haven Shop	1900	19x24" 57" 109000 Ex 172-175
649-699		Vacant		
700-705	N-1	Rhode Island	1884-90	18x24" 57" 112000 Ex 379, 383, 397-399, 393
706-709		Vacant		
710-717	N-2	Norwood Shop	1901-04	18x24" 57" 104000 Ex 915, 942, 975, 982, 984, 941, 981, 1014
718-731	N-2	Rhode Island	1879-83	18x24" 57" 104000 Ex 1001, 1042-1050, 1027, 991, 939, 940
732-759		Vacant		

Classes M and N were both 2-6-0 type

For the benefit of our members I am reproducing four rosters of roads that went into the Old Colony because they include some locomotives that were retired before taken over by the Old Colony system.

BOSTON, CLINTON & FITCHBURG R. R.

One thing that has puzzled many of us is the lack of early engines on both the Taunton Branch and New Bedford & Taunton roads. It was not until the sixties that the former had any number of locomotives and the latter lacked many in order to run their trains. The records of the Taunton Locomotive Works have solved this puzzle. The practice of the early locomotive builders was to build engines first and sell them afterwards—not to build on order as is done at present. Thus, the records indicate that some of these early Taunton engines were rented to these roads until finally sold. The records indicate that some of the early Taunton engines were in service on both roads from six months to a year. What the agreement was between the Taunton Works and the roads is unknown. The roads received the benefit of new locomotives and the engines were certainly broken in by the time they reached their prospective customer, tho' the records indicate they were always taken back and put in first class order before final delivery. No mention will be made of these loaned locomotives as they were never purchased by either road.

Of the early engines on the Taunton Branch R. R., only one, the "Meteor," built in their own Taunton Shops, date and dimensions unknown, never came to the Old Colony.

Of the New Bedford & Taunton R. R., the following did not come to the Old Colony:

Nantucket	Hinkley & Drury	#	2	11-30-1841	4-2-0 10½x20" 60"
	Sold to the Rutland & Burlington R. R.				
Hercules	Hinkley & Drury	#	42	5-22-1845	4-4-0 13½x20" 60"
Taunton	Hinkley & Drury	——		Purchased second hand.	
Phoenix	N. B. & T. R. R.			?	
Rocket	N. B. & T. R. R.			?	
Acushnet	N. B. & T. R. R.			?	

The records of the Taunton Works indicate they furnished the boilers for the above three engines and for the T. Br. "Meteor".

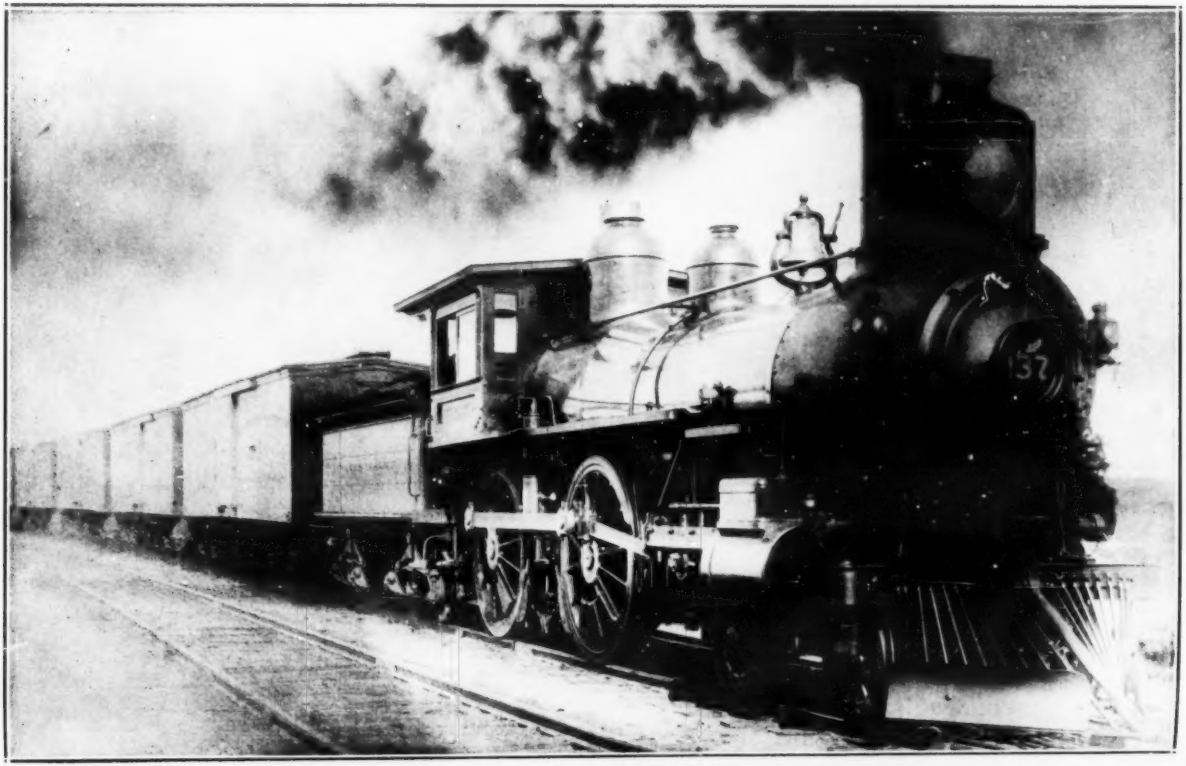
Comet	Taunton L. W.	#	3	8- 1847	4-4-0 14⅝x18" 60"
	Originally the "Pawtucket" built for the Prov. & Worcester R. R., this engine was taken by the Taunton Works in part payment for a new engine, rebuilt and delivered to the N. B. & T. R. R.				
Alfred Gibbs	Taunton L W	#	21	9-13-1848	4-4-0 15x18" 60"
Whistler	Taunton L W	#	31	5-28-1849	4-4-0 15x18" 60"

Both were built for the Taunton Br. R. R. but were used on both roads.

On the Fairhaven Branch R. R. was the:

Fairhaven	Hinkley & Drury	#	538	10- 7-1854	4-4-0 14x20" 60"

We suspect this engine was rebuilt at the Matfield Works and sold as the "Mattapoisett" to the Boston, Hartford & Erie R. R.



The "boat freight" for New York.

Thus the B. C. & F. roster is as follows:

1 Rollstone	Hinkley & Drury	#283	11- 4-1850	15x18"	60"	
	Sold to the T L W in part payment for the new "Rollstone"					
1 Rollstone	Taunton L. W.	#734	4-30-1880	16x22"	54"	O C #74
2 Washacum	Hinkley & Drury	#266	6- 7-1850	15x18"	60"	Sold—1879
3 Leominster	Hinkley & Drury	——	1849	16x20"	54"	O C #73
4 Sterling	Taunton L W	# 35	7-31-1849	15x18"	60"	
	From Rutland & Burlington R. R.—"Middlebury"					
4 Sterling	Taunton L W	#384	5-21-1866	16x22"	60"	O C #85
5 Clinton	Taunton L W	#385	5-30-1866	16x22"	60"	O C #86
6 Northboro	Taunton L W	#397	12- 6-1866	14x26"	60"	O C #87
7 Marlboro	Hinkley L W	——	1872	15x22"	60"	O C #80
8 Fitchburg	Taunton L W	#413	8- 1-1867	16x22"	60"	O C #90
9 Berlin	B. C. & F. R. R.		1869	16x22"	60"	O C #91
10 L. Nichols	Rhode Island	#149	1869	15x22"	60"	O C #98
11 N. Thayer	Taunton L W	#484	12-20-1869	16x22"	60"	O C #92
12 G. A. Torrey	Taunton L W	#493	4- 4-1870	16x24"	54"	O C #93
13 Foxboro	Rhode Island	#231	1870	16x22"	66"	O C #100
14 H. A. Blood	Taunton L W	#519	12-22-1870	16x22"	54"	O C #94
15 Geo. E. Towne	Hinkley L W	——	12- -1869	15x22"	60"	O C #76
16 S. H. Howe	Mason	#419	8-14-1871	16x24"	60"	O C #105
17 E. P. Carpenter	Mason	#424	9- 6-1871	16x24"	60"	O C #106
18 E. A. Harris	Hinkley L W	——	1871	16x24"	60"	O C #77
19 Lowell	Hinkley L W	——	1872	15x22"	48"	O C #79
20 H. N. Bigelow	Taunton L W	#585	10-11-1872	16x24"	54"	O C #96
21 F. B. Fay	Hinkley L W	——	1872	16x24"	60"	O C #78
22 W. D. Peck	Hinkley L W	——	1873	14x22"	54"	O C #81
23 Wm. Mason	Mason	#536	9- 5-1874	16x24"	42"	O C #108
24 Cyrus Gale	Hinkley L W	——	1875	17x24"	60"	O C #82
25 S. A. Webber	Mason	#553	11- 8-1875	16x24"	60"	O C #109
26 Acushnet	Taunton L W	#671	4- 7-1876	15x22"	48"	O C #97
27 Saturn	Taunton Br R. R.		1861	15x20"	66"	O C #83
28 J. Grinnell	Taunton L W	#409	6-20-1867	16x22"	60"	O C #89
29 New Bedford	Rhode Island	#150	1869	16x22"	60"	O C #99
30 Thos. Mandell	Rhode Island	#250	1870	16x24"	60"	O C #101
31 Ward M. Parker	Rhode Island	#420	1872	16x24"	60"	O C #102
32 Jupiter	Taunton L W	#196	9-25-1855	14x20"	66"	O C #84
33 T. B. Wales	Mason	#169	8- 1-1864	15x22"	60"	O C #17
34 E. Baylies	Taunton L W	#308	12-31-1866	15x22"	60"	O C #88
35 Chas. Richmond	Mason	#370	8-27-1870	16x24"	60"	O C #104
36 W. A. Crocker	Taunton L W	#535	8- 5-1871	16x24"	60"	O C #95
37 W. B. Sproat	Mason	#468	8-18-1872	14x22"	48"	O C #107
38 W. J. Rotch	Taunton L W	#632	10-31-1873	14x24"	60"	O C #16
39 Chas. L. Wood	Rhode Island	#385	1872	16x22"	66"	O C #103

CAPE COD R. R.

The Annual Report of 1855 lists the following locomotives:

Wareham	Hinkley & Drury	#126	10- 8-1847	4-4-0	14x18"	60"	O C #51
Sandwich	Hinkley & Drury	#136	12- 4-1847	4-4-0	14x18"	60"	O C #52
Cape Cod	Hinkley & Drury	#165	4-27-1848	4-4-0	16x20"	54"	O C #49
Barnstable	Hinkley & Drury	#214	11-25-1848	4-4-0	12x20"	60"	O C #48
Nantucket	Hinkley & Drury	#513	4-26-1854	4-4-0	15x20"	66"	O C #53
Daniel Webster	Matfield Mfg. Co.	——	5- -1857	4-4-0	15x20"	66"	O C #50
Burgess	Lawrence	——	11-14-1854	4-4-0	14x22"	60"	O C #54
Highland Light	Mason	#273	11-14-1867	4-4-0	14x22"	60"	O C #55
Right Arm	Hinkley & Wms	——	5- -1871	4-4-0	12x22"	54"	O C #56
Bounty	Rogers	——	?	4-4-0	13½x20"	60"	O C #57

The "boat freight" for New York.

The last five engines, of course do not appear on the report but have been added to complete the record.

FALL RIVER R. R.

The Annual Report of 1850 lists the following engines:

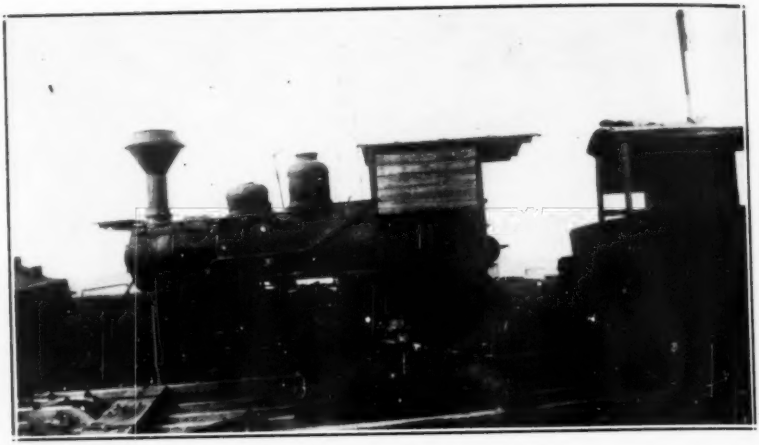
Middleborough	Hinkley & Drury	# 83	12- 2-1846	4-4-0	15x20"	54"	
Renamed "Job Terry"—Sold U. S. Military R. R.							
Newport	Hinkley & Drury	#175	5-31-1848	4-4-0	16x20"	54"	O C #15
Bay State	Hinkley & Drury	#132	11-20-1847	4-4-0	14x18"	60"	O C #17
Bridgewater	Hinkley & Drury	#132	11-20-1847	4-4-0	14x18"	60"	O C #17
	Renamed "Campello"						
Randolph	Hinkley & Drury	# 66	7- 2-1846	4-4-0	14x18"	66"	O C #16
Boston	Hinkley & Drury	# 92	2-11-1847	4-4-0	14x18"	66"	
	Sold—Bangor, Oldtown & Milford R. R.						
Mount Hope	Hinkley & Drury	# 31	1- 1-1845	4-2-0	11½x20"	60"	
	Sold—Fairhaven Branch R. R.						
Fall River	Hinkley & Drury	# 34	2-20-1845	4-2-0	11½x20"	60"	
	Renamed "Wollaston"—Sold						
Braintree	Hinkley & Drury	# 89	1-21-1847	4-4-0	15x20"	54"	O C #13
Middleborough	Taunton L W	# 67	4- 7-1851	4-4-0	15x20"	66"	O C #14
Richard Borden	Hinkley & Drury	#434	3-26-1853	4-4-0	16x20"	66"	O C #11
Metropolis	Hinkley & Drury	#514	5- 1-1854	4-4-0	15x20"	66"	O C #12

The last three engines do not appear on the report of 1850 but have been added to complete the records. The new names were applied by the Old Colony R. R.

NANTASKET BEACH R. R.

1 Nantasket	B. & A. R. R.	——		1868	4-4-0	16x22"	60"
Purchased from the Boston & Albany R. R., "Brookline," O. C. #152. Scrap 1888.							
2 Sagamore	Hinkley & Drury	#221	12-29-1848	4-4-0	15x18"	60"	
Purchased from Fitchburg R. R. #43. Formerly Vt. & Mass. "Royalston."							
3 Allerton	Hinkley & Wms	——		1871	4-4-0	15x22"	60"
O. C. #76—From Springfield, Athol & N. E.—"Willis Phelps."							
4 Pemberton	Taunton L W	#269		1860	4-4-0	15x22"	60"
O. C. #4—Purchased from Boston & Albany R. R. "Buffalo."							
5 Rockland	Mason	# 96	5- 8-1860	4-4-0	15x22"	60"	
O. C. #87—Purchased from Boston & Albany R. R.—"Bison."							
6 Grover Cleveland	Mason	#723	6-30-1885	2-4-4	14x18"	48"	
O. C. #153							

This concludes the Old Colony roster up to the time the Boston & Providence R. R. locomotives were included. These will appear in BULLETIN #47.



Seward Peninsula R. R. at Nome, Alaska.

Seward Peninsula R. R. at Nome, Alaska.

Seward Peninsula Railroad

By Allan D. Meyer

A VISITOR travelling to Northern Alaska will find it hard to believe that the small settlement of Nome, drowsing beside the Bering Sea was once a teeming metropolis of some 30,000 gold-mad people. Nome's lurid and hectic history has been blurred and obliterated by time and by the disastrous fire of September 17, 1934. The business section of the town was completely wiped out, and many buildings, including the Pioneer Hall which housed priceless historical relics and documents, were completely destroyed.

The traveller, going ashore from the passenger lighter at Nome harbor may see narrow gauge rails laid along the dockside. He may even observe a small gas locomotive with a short train of antiquated flatcars loaded with ties or lumber in tow. A walk into town will elicit the fact that tracks and freight terminals exist near the Road Commission offices and at the Lomen Commercial Co. docks. Should the visitor perchance have business to transact at the wireless station near the eastern fringe of town, he will be surprised to see four or five old-fashioned locomotives abandoned and rusting on a spur track in the marshes, the pitiful remains of what was once the rolling stock of the Seward Peninsula Railroad, the northernmost line in United States territory.

The Seward Peninsula Railroad was commenced in 1900—the year of the stampede. Gold had been discovered in great quantities near Anvil Mountain—some five miles inland from Nome. The line was constructed by the Wild Goose Trading Co.—at that time a powerful factor in mining and commercial activities of Nome, and was known as the Wild Goose Railroad. Three enclosed Climax Shay-geared locomotives, Nos. 1, 2, and 3 were brought in to haul passengers and freight. The Nome terminal at that time was located on the Sand Spit on the side of the Snake River opposite the present dockside. The railroad proceeded for about a mile along the Snake River, crossed a bridge and then ran along the marshy plain to the foot of Anvil Mountain.

In the year 1904, the Arctic Trading Co. purchased the interests of the Wild Goose Co., and the name of the line was in consequence changed to the Arctic Railroad. Under the new management the rails were extended to Dexter, some ten miles further.

The Seward Peninsular Railroad Co. took over the line in 1906, and extended it to Shelton, its present terminus, some seventy-five miles inland. The plans of the promoters seem to have been rather vague. A map which I discovered in the office of the local American Express Co. agent, shows the Seward Peninsular Railroad to be part of a network of lines connecting the various ports of the Seward Peninsula with the rich diggings inland. This map was made by the Council River & Solomon R. R. in the year 1902 and, although a twelve mile track (later abandoned) was laid between those two points—

some forty miles east of Nome—the plans for a complete hook-up of the Seward Peninsula were indefinitely shelved when the impracticability of the scheme was demonstrated. Shelton, lying on the rich gold-bearing Kougourok River, some seventy-five miles north of Nome, was chosen as a terminal. Prospectors use the inn at Shelton as a starting point for trips into the vague interior.

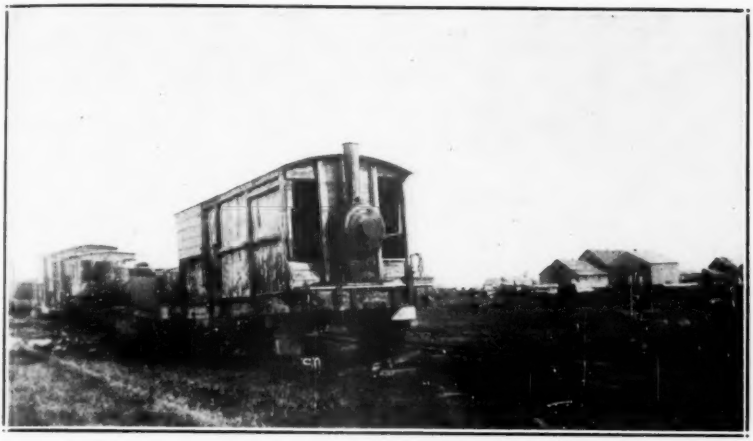
In 1906, the first side-rod engine, known as No. 4, constructed by Porter Bell & Co., Corry, Pa. was brought in to haul freight and two Climax-geared side-rod hogs were imported to work construction trains. These two latter pieces of equipment were shipped out in 1907 and a side-rod engine, constructed by the Baldwin Locomotive Co. of Philadelphia was brought in. This engine first known as No. 7 was later changed to No. 5.

During the years that followed, many mines were abandoned and the Seward Peninsula was deserted by the discouraged gold-seekers. Business on the railroad failed and it finally closed down in the year 1911. It was sold to Mr. Japhet Lindeberg for taxes, who in turn sold it to the Territory of Alaska in 1921.

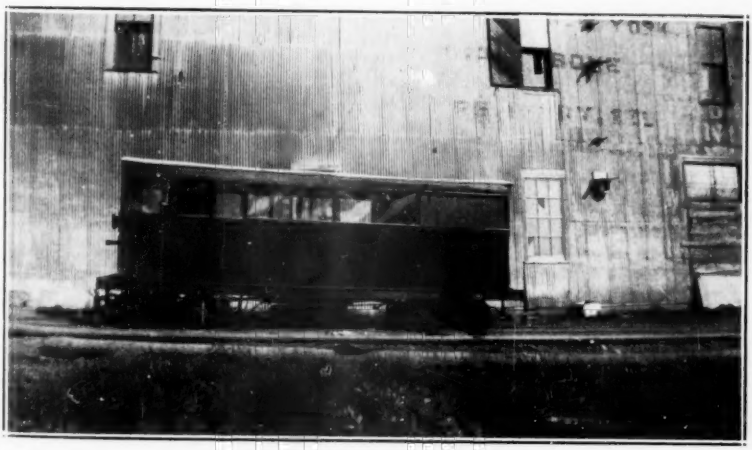
At the present time the right of way of the Seward Peninsula Railroad is part of the Alaskan highway system, and is under the jurisdiction of the Alaska Road Commission. The latter department keeps the tracks in a workable condition, and it is still used to carry supplies to a few mines and claims near the right of way.

Tractive power is now furnished by motor-truck engines mounted on and geared to flat cars, owned by private individuals who charge by the ton for their freight-hauling services. Passenger service is furnished by rail-motors of rather antique vintage. The freight cars of the former Seward Peninsula Railroad have either been sold to the gas-engine owners, the Hammond Consolidated Gold Fields, or have been abandoned. The old steam locomotives have been stripped of their brass and copper fittings and are, as mentioned before, slowly rusting.

The line traverses beautiful scenery on its way to Shelton, and if the traveller can stand a few mosquito bites, the journey is well worth while. The railroad crosses the barren plain behind Nome to Anvil Mountain from whence it steeply climbs along the base of King Mountain and drops to a cantilever bridge constructed across Nome River. The Nome River is then followed past Cape Horn and U. S. Roadhouse to its source on the Seward Peninsula divide. The Kougourok River rises at this point and the line paralleling it curves past beautiful Salmon Lake, along the jagged Sawtooth Mountains and down near Iron Creek to a point on the river bank where the railroad abruptly ends. A bridge once crossed this stream, but a flood wiped it out, and it is necessary for the traveller to take a rowboat in order to reach the Shelton Inn. At Mile 70, a six-mile branch line was constructed last year leading to a point further along the river, known as Bunker Hill, where a road building project into the dim interior has just commenced.



Seward Peninsula R. R. at Nome, Alaska.



Seward Peninsula R. R. at Nome, Alaska.

Grand Central Station

Paper read by ARMSTRONG CHINN, *Chief Engineer, Alton Railroad Co., before the joint meeting of the Engineering Division of Western Society of Engineers and the Chicago Chapter, Railway & Locomotive Historical Society, October 21, 1936.*

The Grand Central Station had its inception in 1867 when a corporation known as "The La Salle and Chicago Railroad Company" was formed to construct a railroad from Chicago to the West. Very little construction was undertaken by this Company; in 1872 the name of the Railroad was changed to the Chicago *and* Great Western and several attempts were made to construct its railroad. This Chicago *and* Great Western Railroad should not be confused with the present Chicago Great Western Railroad which has no "and" in its name and did not come into existence for several years after the Chicago *and* Great Western had disappeared as a corporation. In 1885 interests in control of the Wisconsin Central Railroad acquired control of the Chicago *and* Great Western and construction was actively pursued, the railroad being completed in 1888 from a point one block south of the present Grand Central Station to Forest Park where connections were made with the Wisconsin Central Railroad then also recently completed, and with the Minnesota and Northwestern Railroad at that time under construction. The Wisconsin Central is now known as the Soo Line and the Minnesota and Northwestern is now the Chicago Great Western Railroad. The Chicago passenger terminal of these Roads was a temporary station at Wells and Polk Streets which served from 1888 until the present Grand Central Station was completed.

In 1890 The Chicago and Northern Pacific Railroad was organized by Henry Villard and his associates on the Northern Pacific, and took over four smaller companies of which the most important were the Chicago and Great Western and the Chicago and Calumet Terminal Railroad, the latter founded and developed by General Joseph T. Torrence, extended from what is now Gary, through East Chicago, Blue Island and the western suburbs of Chicago. The Chicago and Northern Pacific completed the construction of the Grand Central Station in 1891.

The Station is located on the south west corner of Harrison and Wells Streets, the Harrison Street frontage being 228 feet and the Wells Street frontage 482 feet; on the corner is a tower with a height of 247 feet. The architecture is of Norman Castellated style, the motif of early Norman castles being accurately carried out from the barricate approach and donjon keep to high watch tower and flanking towers. Even the cornice simulates that projecting feature of Norman castles from which our ancestors poured burning sand and molten lead upon their foemen below. The arch is very much accentuated in the design, all entrances, both pedestrian and vehicular, are massive arches of Connecticut Brownstone which carry the walls of brown brick.

Numerous turrets surmount the walls, which are dotted with narrow glassless windows throughout their height. Architecturally both the exterior and interior of the building are artistic with remarkable adherence to the castellated pattern and unity of tone.

From a utility standpoint the structure is well adapted to its purpose. The main waiting room is 70 x 200 feet and all the usual accessories of ticket office, newsstand, telegraph and telephone services are conveniently grouped around it. Vehicular access is had through an interior "carriage court", which altho designed and built in the "horse and buggy days" is both commodious and suitable for present day motor traffic. The concourse extends from the waiting room across the head end of the eight station tracks and adjoins the carriage court. The station tracks are covered by an arched train shed approximately a city block in length, which has been supplemented by butterfly sheds over the platforms between tracks, which have been extended from time to time as the length of trains has increased.

When the station was opened in 1891, the Roads using it were the predecessors of the Chicago Great Western and the Soo Line, as well as an extensive suburban business of the Chicago & Northern Pacific. In 1892 the Baltimore & Ohio Railroad became a tenant in the Station and in 1903 the Pere Marquette first extended its train service to Chicago and used the Grand Central Station for its passenger terminal.

The Chicago & Northern Pacific Railroad was succeeded through a receivership and foreclosure by the Chicago Terminal Transfer Railroad in 1897 and that Company was succeeded through a similar procedure by the Baltimore and Ohio Chicago Terminal Railroad in 1910. The Grand Central Station has been owned and operated by that Company for the past 26 years. It has been modernized during that period in many of its details, but in all such remodelling, care has been taken to preserve the symmetry and unity of its original design. The Grand Central Station was the first in Chicago to be equipped with facilities for air conditioning cars; its track layout has been expanded to meet modern train and traffic needs; its accessory coach yards and engine terminals have been completely rebuilt, and; while now 45 years old, the appointments and facilities of the Station have been kept abreast of the present day needs so that for convenience to its patrons, it is not surpassed.

Some side lights on the Station will perhaps be interesting:—The structure is upon a pile foundation—9½ miles of piling support the building. The high tower with a weight of 6000 tons is founded on 50 foot piles, each carrying 24 tons of load,—so carefully, however, was this load related to the load from the much lower and lighter portions of the building, that after 45 years no cracks or defects appear in the tower walls or foundations.

A history of Grand Central Station would not be complete without reference to some of the individuals and firms connected with its design and construction. Mr. David S. Wegg was president of the Railroad at the time and Mr. Willis S. Jones was Chief Engineer. Mr. Wegg

later planned and developed the large and important industrial district between Roosevelt Road and 22nd Street in Cicero.

The architect of the Station was Mr. S. S. Beman. Among the contractors appear many names still familiar in the building and construction industry. Masonry work was done by John Griffiths; ornamental iron work by the Chicago Architectural Iron Works; Plumbing, by M. J. Corboy; Elevators, by Crane Company; Train shed by the Keystone Bridge Company; Marbleite Columns, by Art Marble Company; Hardware, Orr & Lockett; Pressed brick, Tiffany; Fire proofing, Illinois Terra Cotta Company; Painting, W. P. Nelson & Company. These, and various other contractors who took part in the construction of the Grand Central Station, are deserving of credit for the excellence of their workmanship, which after nearly half a century stands as testimonial to it, as well as to the foresight of those responsible for the plan and the sound engineering principles applied in design and construction.

Worth Reading

(Compiled by ELIZABETH O. CULLEN, *Reference Librarian; Bureau of Railway Economics, Association of American Railroads, Washington, D. C.)*

BOOKS AND PAMPHLETS

Car Builders' Cyclopedia of American Practice . . . Fourteenth Edition—1937, compiled and edited for the Association of American Railroads Mechanical Division. Roy V. Wright, editor. 1308 pp. Illustrations, Diagrams. New York City, Simmons-Boardman Publishing Co.

End of Track, by James H. Kyner, as told to Hawthorne Daniel. 277 pp. Illustrated. Caldwell, Idaho, The Caxton Printers, Ltd. Born in Lancaster, Ohio in 1846, the author grew up to fight in the Union Army, after the war went west by rail to Nebraska in 1869-70, "went to work on my first railroad-building contract" in June 1881, continued all over the west for more than 20 years, then retired to Bladensburg, Md., where he lives in an old house, which "appealed to me in part, perhaps, because the date high up one of its tall chimneys is 1746, which antedates my own arrival in this world by just one hundred years."

English Railways—Their Beginning, Development and Personalities, by Vernon Sommerfield. 362 pp. Illustrations, Maps. New York and London, Thomas Nelson & Sons, Ltd. The first chapter is "Prelude to Steam", the last "Transition—Was Grouping Necessary?"

Fifteen Percent Case, 1937-1938. Ex Parte 123—In the Matter of Increases in Rates, Fares, and Charges . . . Decided March 8, 1938, by Interstate Commerce Commission. An historic decision, first issued in mimeographed form, 190, 7 pp., which adds to its historical interest.

The citation for the Fifteen Percent Case, 1937-1938 is 226 I. C. C. Reports 41—[163]. Copies at present can be obtained at the Superintendent of Documents' Office, Washington, D C., for 15 cents, per copy, if ordered immediately.

The Formation of the New England Railroad Systems—A Study of Railroad Combination in the Nineteenth Century, by George Pierce Baker. 283 pp. Maps, Charts. Effective and interesting chronicle of "When, how, and why railroad combination took place in New England during the Nineteenth Century," that answers many other "whens", "hows", and "whys" in this period of New England history.

Government Ownership and Operation for the United States, by LEWIS C. SORRELL. 330 pp. New York City, Prentiss-Hall, Inc. " . . . Government ownership of railways has been argued pro and con for sixty years or more; the volume of literature on the subject is very great . . . What past experience and wisdom have to offer should not

be ignored, but attention must be focused upon the problem as it faces the United States at the present time . . ." pp. vii-viii.

Interstate Commerce Commission Activities 1887-1937, prepared in the Bureau of Statistics with the cooperation of other Bureaus of the Commission. 269 pp. Illustrations, Diagrams, Tables. Washington, D. C., U. S. Government Printing Office.

Local Aid to Railroads in Missouri, by Edwin L. Lopata. 153 pp. New York City, [Columbia University, Thesis (PhD. 1937)] " . . . The field of local aid to railroads—by counties and cities—is practically virgin territory for research . . ." p. 4. "Types of local subscriptions authorized" in Missouri 1836-1872, Chapter III, pp. 27-42.

Portraits of the Iron Horse—The American Locomotive in Pictures and Story. Drawings by Otto Kuhler. Story by Robert S. Henry. 80 pp. Illustrated. New York, Chicago, San Francisco, Rand McNally & Co. From "The Best Friend of Charleston" of 1830 to the "streamstyled" steam, diesel, and electric locomotives of the present.

The Railroad, by Santa Fe System Lines. Cover-title, 31 [2] pp. Illustrated. "Railroad History Begins in England" pp. 3-4. "Twin Pathways of American Progress" pp. 5-7. "The Saga of the Santa Fe Trail" pp. 8-9 and back-cover. "Courage and Rails Unified Our Country" pp. 10-13. "The New Santa Fe Trail", pp. 14-15. "How to Start and Run a Railroad" pp. 20-21. "The How of Railway Freight Service" pp. 22-25. McCutcheon's famous cartoon "Evolution of the Santa Fe Trail" published in the Chicago Tribune, May 9, 1937, reproduced as back-cover.

Railways of Thirty Nations—Government versus Private Ownership, by P. Harvey Middleton. 328 pp. Illustrated. " . . . The great railway systems of Europe, Asia, and Africa were built for political, strategic, or social purposes . . . There are only two countries which have successfully resisted or overcome all attempts to have the railways owned and operated by their government. These two countries are the United States and Great Britain. With a total of 848,000 miles of the railways of the world, they have almost one third of the whole—approximately 270,000 miles of line . . . " pp. viii-ix.

The Supreme Test is Usefulness, by C. S. Duncan. 12 mimeo. pp. Address before The Central Railway Club of Buffalo, N. Y., February 10, 1938. Will be printed in the Club's Central Railway Chronicle, in proceedings of the meeting of February 10, 1938. " . . . The need for an adequate transport system was recognized from the earliest days of the Republic. It was in 1807 that Congress directed the Secretary of the Treasury to make a survey and to report on the needs of such facilities, with recommendations for action by the Federal Government . . . " (p. 1) . . . "I wish that we might seek, as the report of 1807 urged, to 'unite by a still more intimate community of interests, the most remote quarters of the United States.' . . . I suggest that our transport

problem would be on the way to proper solution, if we sought to apply these tests of relative usefulness to all our agencies. In time we must do so, why not now? For the supreme test is usefulness." p.12.

PERIODICAL ARTICLES

Annual Overseas Railways Number, 1937. Map, pp.8-9, shows location of railways referred to or illustrated. American railways include railways in Argentina, Bolivia, Brazil, Canada and Chile. Railway Gazette, London, England, special issue dated November 24, 1937. 128-208 pp. Illustrations, Maps.

Annual Statistical and Outlook Number. Includes "A Review of Railway Operations in 1937," by Dr. Julius H. Parmelee, pp. 30-40, which will be reprinted in March 1938 as a bulletin of the Bureau of Railway Economics; "Canadian Roads Have Fair Year" pp. 41-42, and "Mexican Railways' Traffic at Peak", pp. 43-44,47. Railway Age, January 1, 1938, pp. 1-99. Illustrated.

British Railways in Argentina, by Julian S. Duncan. "Comparative freight and passenger rates, Argentina and the United States" p. 574. Political Science Quarterly, December 1937, pp. 559-582.

The Car Service Division, Association of American Railroads—Its History and Functions, by W. J. McGarry. Toronto Railway Club Official Proceedings, January 24, 1938, pp. 20-27, with discussion pp. 27-29.

The Iron Horse Comes Back—After All, by G. H. Burck. Editorial comment. "The Diesel Vogue" in New York Herald Tribune, February 8, 1938, p. 14. Esquire, February 1938, pp. 99,174-175.

Progress in Railroad Mechanical Engineering in 1937. Part I—High-speed Service and Steam-Locomotive Developments. Part II—Diesel and Electric Developments—New Car Design. Report, by Committee RR6, Railroad Division, American Society of Mechanical Engineers, A. Giesl-Gieslingen, chairman. Illustrated. Mechanical Engineering, December 1937, pp. 931-941; January 1938, pp. 22-32.

Railroad Number—The Texaco Star. Includes "A New Viewpoint for the Future", by John J. Pelley, p. 2; "The Railroad Industry—A Century of Progress" pp. 3-8, and articles on construction, hobby trains, streamliners and other famous trains, and model railroading. The Texaco Star, Vol. XXIV, No. 3 [October 1937].

Railway Speed Developments in 1937, by Cecil J. Allen. "Progress in World Railway Speed, 1931-1937", Table A, p. 211; "The Fastest Schedule Runs in the World", Table B, pp. 212-213; "Aggregate High Speed Mileage of the World's Railways, 1937", Table C, p. 213; "A Comparison of High Speed and Route Mileage (Individual Railways)," Table D, p. 214; "A Comparison of High Speed and Route Mileage (Countries)," Table E, p. 214; "Compari-

son of World's Scheduled High Speed Steam, Diesel, and Electrically Operated Mileage, 1937", Table F, p. 214. Railway Gazette, London, England, February 4, 1938, pp. 211-214, with editorial comment, pp. 200-201, which points out, "By far the most rapid general advance in speed in all railway history is that which has taken place during the past five years . . . "

A Romance of the Rails—The Story of the Trials and Tribulations of Houston's Early Day Railroad Planners Who Laid the Cornerstone of the Rail Center of the South, by S. G. Reed. Illustrated. Houston [Houston, Texas Chamber of Commerce], January 1938, pp. 12, 30-36.

"Steam's Up"—A Pleasant Poke at the National Delight in Travelling, by Paul Gallico, with sketches by Gropper. " . . . And whether he knows it or not, the average American does his gipsying in the best-organized and greatest luxury of transportation the world has ever known. He can travel any way he likes or can afford, and whichever way he elects, he is years ahead of any other country in comfort, speed, and safety . . . To begin with, the modern American big city railroad terminal is the most wonderful place in the world . . . " p. 100. Vogue—Americana Number, February 1, 1938, pp. 100-101, 140, 142.

New Books

THE RAILWAY INTERRELATIONS OF THE UNITED STATES AND CANADA, By William J. Wilgus, 304 pages, 9½x6 with 12 maps and 47 tables. Published by the Yale University Press, New Haven. The Ryerson Press, Toronto, Ontario, Canada. Bound in cloth, Price $3.00.

So many of us take the movement of merchandise or passengers between this country and Canada as a matter of course, that few of us realize that there is an historical background to this interchange and that there are so many points where this interchange is made.

The author has taken these gateways in turn—those in the Northeast, Great Lakes and Northwest, traces their origin and growth, the connecting systems and the territory they serve. The maps and tables are illuminative and constructive. Altogether this is a fine piece of work in an entirely new field and aside from the railroad interests, it shows how two large countries with their thousands of miles of border have lived peaceably for over one hundred years.

THE RAILWAY AGE, By Cyril Bruyn Andrews, 145 pages, 9¾x7 with 81 plates and 49 illustrations. Bound in cloth, price 12sh 6d. Published by Country Life, Ltd., 20 Travistock St., Covent Garden, London, W. C. 2, England.

The early railroad construction period in England inspired a great deal of literature that in the majority of instances has either been discarded or destroyed. This book deals with the early formative years of great projects, some of which never got beyond the paper stage and how the railroad affected the economic history of England. The illustrations are of decided interest and value, many of them never having been reproduced heretofore in one volume. Although the author deals only with the railroads in his country, this book is well worth the attention of our members.

THE OLD FALL RIVER LINE, By Roger Williams McAddam, 190 pages, 8x5¾ with 32 illustrations. Bound in cloth, price $2.50. Published by Stephen Daye Press, Brattleboro, Vermont.

The recent discontinuance of this famous line, after ninety years of uninterrupted service, came as a shock to many of us New Englanders. But no one can deny that the old "line" had a history.

Made famous by the old song, used by thousands of honeymooners and made famous with such names as "Admiral" Jim Fisk, Vanderbilts, Morgans and others, the author has given us the romantic side of the line along with the historic. Yet this fleet of steamers made famous by their safety records, their thrilling rescues at sea and their daily routine died in exactly one hundred and ten minutes in the Federal Court in New Haven!

The author was associated with the Line and his grandfather had a shipyard where the present repair docks were located. For years he has been gathering material and in this volume he has presented it to perpetuate the memory of the old "Fall River Line!"

GRINGO BUILDERS, By J. L. Allhands, 295 pages, 9x6 with 23 illustrations. Bound in cloth, price $2.50. Privately printed. Copies may be obtained from J. L. Allhands, 619-20 Frisco Bldg., Joplin, Missouri.

There is romance in railroad building, in turning the desert into a rich and varied agricultural region and here we have the building of the pioneer roads in the State of Texas.

Mr. Allhands writes from experience. As a railroad contractor he had no small part in the building up of the lower Rio Grande Valley. He had a part in the construction of the entire Brownsville line, the Trinity & Brazos Valley, the Stamford & Northwestern, the Quanah, Acme & Pacific as well as extensions of the Texas & Pacific and the Santa Fe.

GRINGO BUILDERS deals with the efforts of the late B. F. Yoakum and the building of the St. Louis, Brownsville & Mexico R. R. It abounds in homely detail and glows with honesty and feeling. It will be a source book in Texas history for years to come and is bound to be of interest to the railroad historians.

BRITISH LOCOMOTIVE TYPES. 113 pages, 6x9½. Published by the Railway Publishing Co., Ltd., 33 Tothill St., London, S. W. 1, England, Price 5sh.

This book satisfies a growing demand on the part of the readers of "The Railway Magazine" and "The Railway Gazette" for a collection of locomotive diagrams giving the principal dimensions of the engines employed on the main lines of the railways of Great Britain.

Originally issued serially in "The Railway Gazette", they have now been collated and published in book form and they make a welcome and valuable addition to any library.

THE RAILWAY HANDBOOK, *1937-1938*. 96 pages, 8½x5½, Published by the Railway Publishing Co., Ltd., 33 Tothill St., London, S. W. 1, England. Price 2sh 6d.

This handbook contains the most recent information relative to the railways of Great Britain and Ireland. It furnishes the railway student with a collection of useful statistics and includes a ten page chronology of railway history. The work is carefully indexed and for a small book contains a vast storehouse of information.

MODERN LOCOMOTIVES OF THE LONDON, MIDLAND & SCOTTISH RY. By D. S. Barrie. 35 pages, 5½x8½, price 1sh. Published by the Locomotive Publishing Co., Ltd., 3 Amen Corner, London, E. C. 4, England.

This book is handsomely illustrated and contains an interesting account and description of the modern locomotives on this road. It reviews the position of the motive power prior to the consolidation with the constituent companies and covers the types resulting from that consolidation. Mr. Barrie, our British Representative, has done a very capable piece of work in assembling this material.

CLARK'S HISTORY OF THE EARLIEST RAILWAYS IN NOVA SCOTIA. By W. W. Clark. 63 pages, 8¼x5½, price 50c. Privately printed. Copies may be obtained from The Old Author's Shop, 1915 St. Catherine St., West, Montreal, P. Q., Canada.

This little book is a veritable mine of information on the early railways of Nova Scotia. While we can only regret that no chronological sequence has been followed, as a reference book, this little work has great value.

Prepared and written by W. W. Clark, a railroad man of the early railways of Nova Scotia, later one of the oldest conductors of the Canadian Pacific Ry., it was his hope that this little work, published in 1927, would have a wide circulation. His widow, now destitute, without pension or other income, has a surplus of these copies and is anxious to dispose of them. The little book has great value on the subject it covers and the purchase of a copy will help the widow of a railroad man who needs your help.

In Memory of

HERBERT L. AREY

4204 S. E. 29th Ave.,

Portland, Oregon

Who Died on January 7, 1938

JOHN RANDOLPH SPEARS

7 Herkimer Road

Utica, New York

Who Died on January 24, 1936

W. SCOTT THOMAS

54 Mount Hope Ave.,

Providence, Rhode Island

Who Died on February 22, 1938

T. B. WOOD

Kenwood Road

Chambersburg, Pennsylvania

Who Died on May 12, 1937

"The Retired Engineer"

GEORGE C. SMITH, Locomotive Engineer, Ft. Smith, who retired in December, 1936, after thirty-four years of service, submits the following verses which he wrote to express the emotions of "The Retired Engineer," as the poem is called:

No more the sound of the call-boy's feet,
In the early hours of morning;
No more the dread of snow and sleet
Of winter's blizzards storming;
And never again will the summons say,
"Your help is urgently wanted
To move the railroad's freight today,"
With prowess he'd often vaunted.

Such calls for help were growing rare
In his latter active days,
For men discovered, everywhere,
That the creed of SAFETY pays;
He helped his road grow, year on year,
His duties ever performing,
No wonder now he sheds a tear
With snowdrifts his head adorning.

No more he'll answer the frantic call
That he at times has heeded,
When engine and cars, and men, and all,
At once were sorely needed
To start the wrecker on its way
To reach some train, ill-fated—
"There's trouble," the busy wires would say,
"The extent has not been stated."

In dreams he fancies, time on time,
Of the "iron horse" he's still master,
And feels the strength of youth and prime,
As he urges, "faster . . . faster!"
As over the road he takes his train,
Full-laden with costly freight,
But . . . only in dreams . . . through sun and rain . . .
And never a trifle late!

Down in his heart he is glad his run
On the glistening rails is ended—
That leisure of life is just begun
Where youth and age are blended;
For many have failed to reach the goal,
But fell performing their duty,
To answer the call of the 'Reaper's roll,
Deprived of long life, with its beauty.

—From *Kansas City Southern Magazine*.

Reproduced as a tribute to H. L. AREY, retired Southern Pacific Engineer.